

plumbate was also prepared and appeared, from its crystalline form, to be isomorphous with the Na salt. The properties of plumbic acid are discussed from the colloidal point of view.

CC 6 (Inorganic Chemistry)

=&gt; d his full

(FILE 'HOME' ENTERED AT 11:14:34 ON 17 JAN 2007)

FILE 'HCAPLUS' ENTERED AT 11:14:45 ON 17 JAN 2007

FILE 'STINGUIDE' ENTERED AT 11:14:53 ON 17 JAN 2007

FILE 'HCAPLUS' ENTERED AT 11:15:21 ON 17 JAN 2007

E US2005-553451/APPS

1 SEA ABB=ON PLU=ON US2005-553451/AP

D SCQN

FILE 'STINGUIDE' ENTERED AT 11:15:43 ON 17 JAN 2007

FILE 'REGISTRY' ENTERED AT 11:17:01 ON 17 JAN 2007

E P-HYDROXYBENZOIC ACID/CN

L2 2 SEA ABB=ON PLU=ON (\*P-HYDROXYBENZOIC ACID\*/CN OR \*P-HYDROXYBE

NZOIC ACID ANHYDRIDE"/CN)

D BROWSE

FILE 'REGISTRY' ENTERED AT 11:18:39 ON 17 JAN 2007

STR 61581-05-3

2 SEA FAM FUL L3

2643 SEA ABB=ON PLU=ON 99-96-7/CN

1 SEA ABB=ON PLU=ON 61581-05-3/CN

2 SEA ABB=ON PLU=ON (L4 OR L6)

2646 SEA ABB=ON PLU=ON (L2 OR L4 OR L5 OR L6)

FILE 'HCAPLUS' ENTERED AT 11:20:25 ON 17 JAN 2007

2 SEA ABB=ON PLU=ON L7

E P-HYDROXYBENZOIC ACID/CT

L10 33 SEA ABB=ON PLU=ON P-HYDROXYBENZOIC ACID(3A)ANHYDRIDE?

L11 33 SEA ABB=ON PLU=ON P (3A)HYDROXYBENZOIC ACID(3A)ANHYDRIDE?

L12 35 SEA ABB=ON PLU=ON (L9 OR L10 OR L11)

L13 13 SEA ABB=ON PLU=ON L12 (L) (PREP OR RACT OR PROC)/RL

E PRECIPITATION/CT

E E7+ALL

L14 3609 SEA ABB=ON PLU=ON PRECIPITATES/CT

E ISOLATING/CT

L15 1685761 SEA ABB=ON PLU=ON PRECIPITA? OR ISOLAT?

L16 35 SEA ABB=ON PLU=ON (L9 OR L10 OR L11 OR L12 OR L13)

L17 1 SEA ABB=ON PLU=ON L16 AND (L14 OR L15)

E TRANSITION TEMPERATURE/CT

E E3+ALL

E E2+ALL

L18 49418 SEA ABB=ON PLU=ON \*GLASS TRANSITION TEMPERATURE\*+OLD/CT

E PHASE TRANSITION TEMPERATURE/CT

E E3+ALL

L19 70211 SEA ABB=ON PLU=ON \*PHASE TRANSITION TEMPERATURE\*+NT/CT

E SUPERCONDUCTING CRITICAL TEMPERATURE/CT

E E3+ALL

L20 13203 SEA ABB=ON PLU=ON \*SUPERCONDUCTING CRITICAL TEMPERATURE\*+OLD/CT

E TRANSITION TEMPERATURE/CT

E E1+ALL

192124 SEA ABB=ON PLU=ON ?TRANSITION?(5A)TEMPERATURE?

L21 6 SEA ABB=ON PLU=ON L16 AND (L18 OR L19 OR L20 OR L21)

L22 7 SEA ABB=ON PLU=ON (L17 OR L22)

D KWIC

L24 8 SEA ABB=ON PLU=ON (L23 OR L1)

L25 36 SEA ABB=ON PLU=ON (L1 OR L16)

E PRECIPITATION/CT

E E3+ALL

E E2+ALL

L26 25005 SEA ABB=ON PLU=ON \*PRECIPITATION (CHEMICAL) \*+OLD,NT/CT

E PRECIPITATION/CT

E E5+ALL

L27 25005 SEA ABB=ON PLU=ON \*PRECIPITATION (CHEMICAL) \*+OLD,NT/CT

E PRECIPITATION/CT

E E6+ALL

L28 133 SEA ABB=ON PLU=ON \*PRECIPITATION (CHEMICAL) (L) AFFINITY\*+OLD /CT

E PRECIPITATION (CHEMICAL) (L) AGENTS/CT

E E3+ALL

L29 297 SEA ABB=ON PLU=ON \*PRECIPITATION (CHEMICAL) (L) AGENTS\*+OLD/C

T

E PRECIPITATION (CHEMICAL) (L) APP./CT

E E3+ALL

L30 1715 SEA ABB=ON PLU=ON \*PRECIPITATION (CHEMICAL) (L) APP.\*+OLD/CT

E PRECIPITATION (CHEMICAL) (L) CRYOGENIC/CT

E E3+ALL

L31 77 SEA ABB=ON PLU=ON \*PRECIPITATION (CHEMICAL) (L) CRYOGENIC\*+OL

D/CT

E PRECIPITATION (CHEMICAL) (L) ENTHALPY/CT

E E3+ALL

E E2+ALL

L32 123 SEA ABB=ON PLU=ON \*PRECIPITATION ENTHALPY\*+OLD/CT

E PRECIPITATION (CHEMICAL) (L) KINETICS/CT

E E3+ALL

L33 440 SEA ABB=ON PLU=ON \*PRECIPITATION (CHEMICAL) (L) KINETICS\*+OLD /CT

670864 SEA ABB=ON PLU=ON ?PRECIPITA?

0 SEA ABB=ON PLU=ON L16 AND (L26 OR L27 OR L28 OR L29 OR L30

OR L31 OR L32 OR L33 OR L34)

FILE 'MEDLINE, EMBASE, BIOSIS, CROLD, DRUGU' ENTERED AT 11:29:25 ON 17

JAN 2007

0 SEA ABB=ON PLU=ON L7

FILE 'HCAPLUS' ENTERED AT 11:29:44 ON 17 JAN 2007

17575 SEA ABB=ON PLU=ON L8

6688 SEA ABB=ON PLU=ON L8 (L) (PREP OR PROC OR RACT)/RL

951 SEA ABB=ON PLU=ON L38 AND (L14 OR L15 OR L18 OR L19 OR L20

OR L21 OR L26 OR L27 OR L28 OR L29 OR L30 OR L31 OR L32 OR L33

OR L34)

410 SEA ABB=ON PLU=ON L39 AND (L18 OR L19 OR L20 OR L21)

356 SEA ABB=ON PLU=ON L40 AND ?CRYSTA?

350 SEA ABB=ON PLU=ON L41 AND (?TEMPERATURE?)

342 SEA ABB=ON PLU=ON L42 AND ?TRANSITION?

69477 SEA ABB=ON PLU=ON ?CRYSTAL?(5A)?ACID?

98 SEA ABB=ON PLU=ON L43 AND L44

D KWIC

L146 6 SEA ABB=ON PLU=ON L43 AND (CRYSTAL? (SA) BENZOIC?)  
D KWIC

L147 86 SEA ABB=ON PLU=ON L37 AND (CRYSTAL? (SA) BENZOIC?)

L148 31 SEA ABB=ON PLU=ON L47 AND (?TEMPERATURE? OR ?TRANSITION?)  
D KWIC

L149 13 SEA ABB=ON PLU=ON L47 AND (L14 OR L15 OR L18 OR L19 OR L20  
OR L21 OR L26 OR L27 OR L28 OR L29 OR L30 OR L31 OR L32 OR L33  
OR L34)  
D KWIC

L150 20 SEA ABB=ON PLU=ON (L23 OR L46 OR L49)

L151 18 SEA ABB=ON PLU=ON L50 AND (PY<2003 OR AY<2003 OR PRY<2003)  
D KWIC L50 5  
D KWIC L50 8

L152 13 SEA ABB=ON PLU=ON L47 AND ?TRANSITION?

L153 23 SEA ABB=ON PLU=ON (L52 OR L50)

L154 2280 SEA ABB=ON PLU=ON L37 AND (L14 OR L15 OR L18 OR L19 OR L20  
OR L21 OR L26 OR L27 OR L28 OR L29 OR L30 OR L31 OR L32 OR L33  
OR L34)

L155 762 SEA ABB=ON PLU=ON L54 AND ?TRANSITION?

L156 34 SEA ABB=ON PLU=ON L55 AND (L14 OR L15 OR L26 OR L27 OR L28  
OR L29 OR L30 OR L31 OR L32 OR L33 OR L34)  
D KWIC

L157 896 SEA ABB=ON PLU=ON L54 AND (?TRANSITION? (SA) TMP OR TEMP?)

L158 896 SEA ABB=ON PLU=ON L54 AND (TRANSITION? (3A) TMP OR TEMP?)

L159 142 SEA ABB=ON PLU=ON L58 AND (L14 OR L15 OR L26 OR L27 OR L28  
OR L29 OR L30 OR L31 OR L32 OR L33 OR L34)  
D KWIC

L160 18 SEA ABB=ON PLU=ON L59 AND (L18 OR L19 OR L20 OR L21)  
D KWIC  
D KWIC 5  
D KWIC 10  
D KWIC L59  
D KWIC L59 5

L161 721 SEA ABB=ON PLU=ON L54 AND ((TRANSITION) (3A) (TMP OR TEMP?))

L162 17 SEA ABB=ON PLU=ON L61 AND (L14 OR L15 OR L26 OR L27 OR L28  
OR L29 OR L30 OR L31 OR L32 OR L33 OR L34)  
D KWIC  
D KWIC 7  
D KWIC 10

L163 56 SEA ABB=ON PLU=ON L54 AND (TRANSITION (SA) ?BENZOIC?)  
D KWIC

L164 54 SEA ABB=ON PLU=ON L63 AND (TEMP? OR TMP)

L165 72 SEA ABB=ON PLU=ON (L60 OR L62 OR L63 OR L64)

L166 56 SEA ABB=ON PLU=ON L63 AND (TRANSITION (SA) ?BENZOIC?)

L167 54 SEA ABB=ON PLU=ON L66 AND (TEMP? OR TMP)  
D KWIC

L168 29 SEA ABB=ON PLU=ON L67 AND TRANSITION TEMP?  
D KWIC

L169 50 SEA ABB=ON PLU=ON L67 AND (PY<2003 OR AY<2003 OR PRY<2003)

L170 10 SEA ABB=ON PLU=ON L67 AND TRANSITION TEMP? (SA) ?BENZOIC?  
D KWIC  
D KWIC 2  
D KWIC 4  
D KWIC 10

L171 29 SEA ABB=ON PLU=ON (L68 OR L70)

L172 49 SEA ABB=ON PLU=ON (L53 OR L71)

L173 FILE 'REGISTRY' ENTERED AT 11:54:03 ON 17 JAN 2007  
2 SEA ABB=ON PLU=ON L8 AND MEDLINE/LC  
6 SEA ABB=ON PLU=ON L8 AND BIOSIS/LC  
3 SEA ABB=ON PLU=ON L8 AND EMBASE/LC  
37 SEA ABB=ON PLU=ON L8 AND CAOLD/LC  
1 SEA ABB=ON PLU=ON L8 AND DRUGU/LC  
0 SEA ABB=ON PLU=ON L8 AND SCISEARCH/LC

L174 FILE 'MEDLINE' ENTERED AT 11:54:49 ON 17 JAN 2007  
245 SEA ABB=ON PLU=ON L73  
0 SEA ABB=ON PLU=ON L79 AND TRANSITION TEMP? (SA) BENZOIC?  
0 SEA ABB=ON PLU=ON L79 AND TRANSITION TEMP? (SA) ACID?

L175 FILE 'BIOSIS' ENTERED AT 11:55:52 ON 17 JAN 2007  
1064 SEA ABB=ON PLU=ON L74  
0 SEA ABB=ON PLU=ON L82 AND TRANSITION TEMP? (SA) BENZOIC?

L176 FILE 'EMBASE' ENTERED AT 11:56:09 ON 17 JAN 2007  
1006 SEA ABB=ON PLU=ON L75  
0 SEA ABB=ON PLU=ON L84 AND TRANSITION TEMP? (SA) BENZOIC?

L177 FILE 'CAOLD' ENTERED AT 11:56:24 ON 17 JAN 2007  
39 SEA ABB=ON PLU=ON L76  
0 SEA ABB=ON PLU=ON L86 AND TRANSITION TEMP? (SA) BENZOIC?

L178 FILE 'DRUGU' ENTERED AT 11:56:39 ON 17 JAN 2007  
70 SEA ABB=ON PLU=ON L77  
0 SEA ABB=ON PLU=ON L88 AND TRANSITION TEMP? (SA) BENZOIC?

L179 FILE 'WPIX' ENTERED AT 11:56:57 ON 17 JAN 2007  
E HYDROXYBENZOIC ACID/CN  
E P-HYDROXYBENZOIC ACID/CN  
4 SEA ABB=ON PLU=ON ("P-HYDROXYBENZOIC ACID"/CN OR "P-HYDROXYBE  
NZOIC ACID 2-HEXYL DECYL ESTER"/CN OR "P-HYDROXYBENZOIC ACID  
ESTER GLUCOSIDE"/CN OR "P-HYDROXYBENZOIC ACID HYDRAZIDE"/CN OR  
P-HYDROXYBENZOIC-ACID-ESTER-GLUCOSIDE/CN)  
D TOT SDON  
D TOT SDON DCSE

L180 479 SEA ABB=ON PLU=ON (R00693 OR R18880 OR RABICZ OR RAC90J)/DCN

L181 0 SEA ABB=ON PLU=ON (5683-0-0-0 OR 119101-0-0-0 OR 769008-1-0-0  
OR 804700-0-0-0)/DCRE

L182 13 SEA ABB=ON PLU=ON P/BIX, ABEX, BIE, TT (3A) ANHYDRIDE?/BIX, ABEX, BIE, TT  
ACID/BIX, ABEX, BIE, TT (3A) ANHYDRIDE?/BIX, ABEX, BIE, TT

L183 2037 SEA ABB=ON PLU=ON P/BIX, ABEX, BIE, TT (3A) (HYDROXYBENZOIC?/BIX,  
ABEX, BIE, TT OR SALICYLIC ACID/BIX, ABEX, BIE, TT)

L184 192 SEA ABB=ON PLU=ON PARABEN/BIX, ABEX, BIE, TT (2A) ACID/BIX, ABEX, B  
IE, TT

L185 2546 SEA ABB=ON PLU=ON (L90 OR L91 OR L92 OR L93 OR L94 OR L95)  
734 SEA ABB=ON PLU=ON L96 AND (TRANSITION?/BIX, ABEX, BIE, TT (3A) TM  
P/BIX, ABEX, BIE, TT OR TEMP?/BIX, ABEX, BIE, TT)

L186 71 SEA ABB=ON PLU=ON L97 AND (PRECIPIT?/BIX, ABEX, BIE, TT OR  
ISOLAT?/BIX, ABEX, BIE, TT)

L187 35 SEA ABB=ON PLU=ON L98 AND CRYSTAL?/BIX, ABEX, BIE, TT  
D KWIC

L188 2 SEA ABB=ON PLU=ON L97 AND TRANSITION TEMP?/BIX, ABEX, BIE, TT (5  
A) BENZOIC?/BIX, ABEX, BIE, TT  
D KWIC

L101 9 SEA ABB=ON PLU=ON L98 AND TRANSITION?/BIX.ABEX.BIEK.TT

D KWIC

L102 11 SEA ABB=ON PLU=ON (L100 OR L101)

FILE 'STNGUIDE' ENTERED AT 12:04:08 ON 17 JAN 2007

FILE 'HCAPLUS' ENTERED AT 13:12:20 ON 17 JAN 2007

E UENO R/AU

L103 301 SEA ABB=ON PLU=ON ('UENO R"/AU OR "UENO RYUZO"/AU OR "UENO RYUZO"/AU OR "UENO RYUZO"/AU OR "UENO RYUZO"/AU)

E KITAYAMA M/AU

L104 93 SEA ABB=ON PLU=ON ("KITAYAMA M"/AU OR "KITAYAMA MASAYA"/AU)

E IZUMICHI N/AU

L105 10 SEA ABB=ON PLU=ON ("IZUMICHI N"/AU OR "IZUMICHI NOBUTAKA"/AU)

E KITAKA M/AU

L106 6 SEA ABB=ON PLU=ON ("KITAKA M"/AU OR "KITAKA WASHARU"/AU)

L107 3 SEA ABB=ON PLU=ON (L103 AND L104 AND L105 AND L106)

L108 48 SEA ABB=ON PLU=ON (L103 AND L104 OR L105 OR L106)) OR (L104

AND (L105 OR L106)) OR (L105 AND L106)

L109 12 SEA ABB=ON PLU=ON L108 AND L107

L110 5 SEA ABB=ON PLU=ON L108 AND ?ANHYDRIDE?

L111 18 SEA ABB=ON PLU=ON (L107 OR L109 OR L110)

L112 48 SEA ABB=ON PLU=ON (L103 AND (L104 OR L105 OR L106))

L113 11 SEA ABB=ON PLU=ON (L104 AND (L105 OR L106))

L114 3 SEA ABB=ON PLU=ON (L105 AND L106)

L115 11 SEA ABB=ON PLU=ON (L112 AND (L113 OR L114)) OR (L113 AND

L114)

L116 25 SEA ABB=ON PLU=ON (L111 OR L115)

FILE 'HCAPLUS, MEDLINE, EMBASE, BIOSIS, DRUGU, WPIX' ENTERED AT 13:16:17

ON 17 JAN 2007

L117 1634 SEA ABB=ON PLU=ON UENO R?/AU

L118 1251 SEA ABB=ON PLU=ON KITAYAMA M?/AU

L119 16 SEA ABB=ON PLU=ON IZUMICHI N?/AU

L120 66 SEA ABB=ON PLU=ON KITAKA M?/AU

L121 7 SEA ABB=ON PLU=ON L117 AND L118 AND L119 AND L120

L122 62 SEA ABB=ON PLU=ON (L117 OR L118 OR L119 OR L120) AND (P

(3A) (HYDROXYBENZONIC? OR SALICYLIC ACID))

L123 35 SEA ABB=ON PLU=ON (L117 OR L118 OR L119 OR L120) AND

ANHYDRIDE?

L124 92 SEA ABB=ON PLU=ON (L122 OR L123)

L125 2 SEA ABB=ON PLU=ON L124 AND TRANSITION?

FILE 'STNGUIDE' ENTERED AT 13:20:25 ON 17 JAN 2007

D QUE L116

D QUE L125

D QUE L121

D QUE L72

D QUE L102

FILE 'HCAPLUS, BIOSIS, WPIX' ENTERED AT 13:21:13 ON 17 JAN 2007

L126 85 DUP REM L116 L121 L125 L72 L102 (9 DUPLICATES REMOVED)

ANSWERS '1-73' FROM FILE HCAPLUS

ANSWER '74' FROM FILE BIOSIS

ANSWERS '75-85' FROM FILE WPIX

D IBIB ABS HITIND RETABLE L126 1-73

D IBIB ABS L126 74

D ALL ABSQ TECH L126 75-85

FILE 'HCAPLUS' ENTERED AT 13:22:47 ON 17 JAN 2007

E E3+ALL

L127 111509 SEA ABB=ON PLU=ON ANHYDRIDES-OLD.NT/CT

E E3+ALL

L128 242800 SEA ABB=ON PLU=ON ?ANHYDRIDE?

L129 261405 SEA ABB=ON PLU=ON (L127 OR L128)

L130 25342 SEA ABB=ON PLU=ON L129 AND (L14 OR L15 OR L18 OR L19 OR L20

OR L21 OR L26 OR L27 OR L28 OR L29 OR L30 OR L31 OR L32 OR L33

OR L34)

L131 6814 SEA ABB=ON PLU=ON L130 AND (L18 OR L19 OR L20 OR L21)

L132 80 SEA ABB=ON PLU=ON L131 AND (L26 OR L27 OR L28 OR L29 OR L30

OR L31 OR L32 OR L33 OR L34)

L133 2 SEA ABB=ON PLU=ON L132 AND ?CRYSTAL

L134 16 SEA ABB=ON PLU=ON L132 AND ?CRYSTAL?

L135 16 SEA ABB=ON PLU=ON (L133 OR L134)

D KWIC

D KWIC 2

L136 75 SEA ABB=ON PLU=ON L132 AND TRANSITION?

L137 79 SEA ABB=ON PLU=ON L132 AND (TRANSITION? (3A) TMP OR TEMP?)

D KWIC

L138 15 SEA ABB=ON PLU=ON L137 AND ?CRYSTAL?

D KWIC

L\*\*\* DEL 27419 S ?CRYSTAL? (3A) L129

L139 332 SEA ABB=ON PLU=ON L130 AND CRYSTAL? (3A) ANHYDRIDE?

L140 74 SEA ABB=ON PLU=ON L139 AND (L18 OR L19 OR L20 OR L21)

L141 2 SEA ABB=ON PLU=ON L140 AND (L26 OR L27 OR L28 OR L29 OR L30

OR L31 OR L32 OR L33 OR L34)

D KWIC

L142 45 SEA ABB=ON PLU=ON L140 AND TRANSITION TEMP?

D KWIC

L143 66 SEA ABB=ON PLU=ON L140 AND TEMPERATURE?

L144 66 SEA ABB=ON PLU=ON L140 AND ?TEMPERATURE?

L145 55 SEA ABB=ON PLU=ON (L143 OR L144) AND ?TRANSITION?

L146 55 SEA ABB=ON PLU=ON (L142 OR L145)

L147 54 SEA ABB=ON PLU=ON L146 NOT (L72 OR L116)

D KWIC

L148 37 SEA ABB=ON PLU=ON L147 (L) (PREP OR PROC OR RACT)/RL

L149 54 SEA ABB=ON PLU=ON (L147 OR L148)

L150 68 SEA ABB=ON PLU=ON (L149 OR L135 OR L133 OR L141 OR L138)

L151 68 SEA ABB=ON PLU=ON L150 NOT (L72 OR L116)

L152 55 SEA ABB=ON PLU=ON L151 AND (PY<2003 OR AY<2003 OR PRY<2003)

D QUE L152

D IBIB ABS HITIND RETABLE L152 TOT

FILE HOME

FILE HCAPLUS

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FILE COVERS 1907 - 17 Jan 2007 VOL 146 ISS 4  
FILE LAST UPDATED: 16 Jan 2007 (20070116/ED)

New CAS Information Use Policies, enter HELP USAGETERMS for details.  
This file contains CAS Registry Numbers for easy and accurate substance identification.

FILE STNGUIDE  
FILE CONTAINS CURRENT INFORMATION.  
LAST RELOADED: Jan 12, 2007 (20070112/UP).

FILE REGISTRY  
Property values tagged with IC are from the ZIC/VINITI data file provided by InfoChem.

STRUCTURE FILE UPDATES: 16 Jan 2007 HIGHEST RN 917560-96-4  
DICTIONARY FILE UPDATES: 16 Jan 2007 HIGHEST RN 917560-96-4

New CAS Information Use Policies, enter HELP USAGETERMS for details.

TSCA INFORMATION NOW CURRENT THROUGH June 30, 2006

Please note that search-term pricing does apply when conducting SmartSELECT searches.

REGISTRY includes numerically searchable data for experimental and predicted properties as well as tags indicating availability of experimental property data in the original document. For information on property searching in REGISTRY, refer to:

<http://www.cas.org/ONLINE/UG/rsgrps.html>

FILE MEDLINE

FILE LAST UPDATED: 16 Jan 2007 (20070116/UP). FILE COVERS 1950 TO DATE.

All regular MEDLINE updates from November 15 to December 16 have been added to MEDLINE, along with 2007 Medical Subject Headings (MeSH(R)) and 2007 tree numbers.

The annual reload will be available in early 2007.

This file contains CAS Registry Numbers for easy and accurate substance identification.

FILE EMBASE

FILE COVERS 1974 TO 17 Jan 2007 (20070117/ED)

EMBASE is now updated daily. SDI frequency remains weekly (default) and biweekly.

This file contains CAS Registry Numbers for easy and accurate substance identification.

FILE BIOSIS

FILE COVERS 1969 TO DATE.

CAS REGISTRY NUMBERS AND CHEMICAL NAMES (CnE) PRESENT FROM JANUARY 1969 TO DATE.

RECORDS LAST ADDED: 10 January 2007 (20070110/ED)

FILE CROLD

FILE COVERS 1907-1966

FILE LAST UPDATED: 01 May 1997 (19970501/UP)

This file contains CAS Registry Numbers for easy and accurate substance identification. Title keywords, authors, patent assignees, and patent information, e.g., patent numbers, are now searchable from 1907-1966. TIFF images of CA abstracts printed between 1907-1966 are available in the PAGE display formats.

New CAS Information Use Policies, enter HELP USAGETERMS for details.

This file supports REGISTRY for direct browsing and searching of all substance data from the REGISTRY file. Enter HELP FIRST for more information.

FILE DRUGU

FILE LAST UPDATED: 12 Jan 2007 <20070112/UP>

>>> DERWENT DRUG FILE (SUBSCRIBER) <<<

>>> FILE COVERS 1983 TO DATE <<<

>>> THESAURUS AVAILABLE IN /CT <<<

FILE WPIX

FILE LAST UPDATED: 15 Jan 2007 <20070115/UP>

MOST RECENT THOMSON SCIENTIFIC UPDATE: 200704 <200704/DW>

DERWENT WORLD PATENTS INDEX SUBSCRIBER FILE, COVERS 1963 TO DATE

>>> YOU ARE IN THE NEW AND ENHANCED DERWENT WORLD PATENTS INDEX <<<

>>> IPC Reform reclassification data for the backfile is being loaded into the database during the first half of January 2007. There will not be any update date (UP) written for the reclassified documents, but they can be identified by 20060101/UPIC. <<<

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[http://www.stn-international.de/training\\_center/patents/stn\\_guide.pdf](http://www.stn-international.de/training_center/patents/stn_guide.pdf)

FOR DETAILS OF THE PATENTS COVERED IN CURRENT UPDATES, SEE

<http://scientific.thomson.com/support/patents/coverage/latestupdates/>

PLEASE BE AWARE OF THE NEW IPC REFORM IN 2006, SEE

[http://www.stn-international.de/stndatabases/details/ipc\\_reform.html](http://www.stn-international.de/stndatabases/details/ipc_reform.html) and

<http://scientific.thomson.com/media/scpdf/ipcdwpi.pdf>

>>> FOR DETAILS ON THE NEW AND ENHANCED DERWENT WORLD PATENTS INDEX

PLEASE SEE

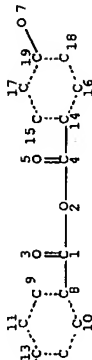
[http://www.stn-international.de/stndatabases/details/dwpi\\_r.html](http://www.stn-international.de/stndatabases/details/dwpi_r.html) <<<

>>> New and revised Manual Codes went live in Derwent World Patents Index to view the lists of new, revised and retired codes for both CPI and EPI, please go to:





=> d que l116;d que l125;d que l121;d que l72;d que l102  
 2 SEA FILE=REGISTRY ABB=ON PLU=ON ("P-HYDROXYBENZOIC ACID"/CN  
 OR "P-HYDROXYBENZOIC ACID ANHYDRIDE"/CN)  
 L3 STR



NODE ATTRIBUTES:  
 RING(S) ARE ISOLATED OR EMBEDDED  
 DEFAULT MLEVEL IS ATOM  
 DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:  
 NUMBER OF NODES IS 19

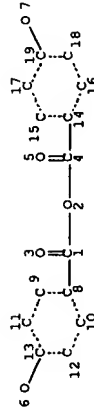
STEREO ATTRIBUTES: NONE  
 L4 2 SEA FILE=REGISTRY FAM FUL L3  
 L5 2643 SEA FILE=REGISTRY ABB=ON PLU=ON 99-96-7/CRN  
 L6 1 SEA FILE=REGISTRY ABB=ON PLU=ON 61581-05-3/CRN  
 L8 2646 SEA FILE=REGISTRY ABB=ON PLU=ON (L2 OR L4 OR L5 OR L6)  
 L37 17575 SEA FILE=HCAPILUS ABB=ON PLU=ON L8  
 L103 301 SEA FILE=HCAPILUS ABB=ON PLU=ON ("UENO R"/AU OR "UENO  
 RYZOZ"/AU OR "UENO RYZOZ"/AU OR "UENO RYZOZ"/AU)  
 L104 93 SEA FILE=HCAPILUS ABB=ON PLU=ON ("KITAYAMA M"/AU OR "KITAYAMA  
 MASAYA"/AU)  
 L105 10 SEA FILE=HCAPILUS ABB=ON PLU=ON ("IZUMICHI N"/AU OR "IZUMICHI  
 NOBUTAKA"/AU)  
 L106 6 SEA FILE=HCAPILUS ABB=ON PLU=ON ("KITAKA M"/AU OR "KITAKA  
 MASAHARU"/AU)  
 L107 3 SEA FILE=HCAPILUS ABB=ON PLU=ON L103 AND L104 AND L105 AND  
 L106  
 L108 48 SEA FILE=HCAPILUS ABB=ON PLU=ON (L103 AND (L104 OR L105 OR  
 L106)) OR (L104 AND (L105 OR L106))  
 L109 12 SEA FILE=HCAPILUS ABB=ON PLU=ON L108 AND L37  
 L110 5 SEA FILE=HCAPILUS ABB=ON PLU=ON L108 AND L37  
 L111 18 SEA FILE=HCAPILUS ABB=ON PLU=ON (L107 OR L109 OR L110)  
 L112 48 SEA FILE=HCAPILUS ABB=ON PLU=ON (L103 AND (L104 OR L105 OR  
 L106))  
 L113 11 SEA FILE=HCAPILUS ABB=ON PLU=ON (L104 AND (L105 OR L106))  
 L114 3 SEA FILE=HCAPILUS ABB=ON PLU=ON (L105 AND L106)  
 L115 11 SEA FILE=HCAPILUS ABB=ON PLU=ON (L112 AND (L113 OR L114)) OR  
 (L113 AND L114)  
 L116 25 SEA FILE=HCAPILUS ABB=ON PLU=ON (L111 OR L115)

L117 1654 SEA UENO R7/AU  
 L118 1251 SEA KITAYAMA M7/AU  
 L119 16 SEA IZUMICHI N7/AU  
 L120 66 SEA KITAKA M7/AU

L122 62 SEA (L117 OR L118 OR L119 OR L120) AND (P (3A) (HYDROXYBENZOIC  
 OR SALICYLIC ACID))  
 L123 35 SEA (L117 OR L118 OR L119 OR L120) AND ANHYDRIDE?  
 L124 92 SEA (L122 OR L123)  
 L125 2 SEA L124 AND TRANSITION?

L117 1654 SEA UENO R7/AU  
 L118 1251 SEA KITAYAMA M7/AU  
 L119 16 SEA IZUMICHI N7/AU  
 L120 66 SEA KITAKA M7/AU  
 L121 7 SEA L117 AND L118 AND L119 AND L120

L2 2 SEA FILE=REGISTRY ABB=ON PLU=ON ("P-HYDROXYBENZOIC ACID"/CN  
 OR "P-HYDROXYBENZOIC ACID ANHYDRIDE"/CN)  
 L3 STR



NODE ATTRIBUTES:  
 DEFAULT MLEVEL IS ATOM  
 DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:  
 RING(S) ARE ISOLATED OR EMBEDDED  
 NUMBER OF NODES IS 19

STEREO ATTRIBUTES: NONE  
 L4 2 SEA FILE=REGISTRY FAM FUL L3  
 L5 2643 SEA FILE=REGISTRY ABB=ON PLU=ON 99-96-7/CRN  
 L6 1 SEA FILE=REGISTRY ABB=ON PLU=ON 61581-05-3/CRN  
 L7 2 SEA FILE=REGISTRY ABB=ON PLU=ON (L4 OR L6)  
 L8 2646 SEA FILE=REGISTRY ABB=ON PLU=ON (L2 OR L4 OR L5 OR L6)  
 L9 2 SEA FILE=HCAPILUS ABB=ON PLU=ON L7  
 L10 33 SEA FILE=HCAPILUS ABB=ON PLU=ON P-HYDROXYBENZOIC ACID(3A)/ANHYD  
 RIDE?  
 L11 33 SEA FILE=HCAPILUS ABB=ON PLU=ON P (3A)HYDROXYBENZOIC ACID(3A)A  
 NYDRIDE?  
 L12 35 SEA FILE=HCAPILUS ABB=ON PLU=ON (L9 OR L10 OR L11)  
 L13 13 SEA FILE=HCAPILUS ABB=ON PLU=ON L12 (L) (PREP OR RACT OR  
 PROC)/RL  
 L14 3609 SEA FILE=HCAPILUS ABB=ON PLU=ON PRECIPITATES/CT  
 L15 1685761 SEA FILE=HCAPILUS ABB=ON PLU=ON PRECIPITAT? OR ISOLAT?  
 L16 35 SEA FILE=HCAPILUS ABB=ON PLU=ON (L9 OR L10 OR L11 OR L12 OR  
 L13)  
 L17 1 SEA FILE=HCAPILUS ABB=ON PLU=ON L16 AND (L14 OR L15)  
 L18 49418 SEA FILE=HCAPILUS ABB=ON PLU=ON "GLASS TRANSITION TEMPERATURE"  
 +OLD/CT  
 L19 70211 SEA FILE=HCAPILUS ABB=ON PLU=ON "PHASE TRANSITION TEMPERATURE"  
 +NT/CT  
 L20 13203 SEA FILE=HCAPILUS ABB=ON PLU=ON "SUPERCONDUCTING CRITICAL

TEMPERATURE\*+OLD/CT  
L21 192124 SEA FILE-HCAPLUS ABB=ON PIJ=ON 7TRANSITION? (SA) TEMPERATURE?  
L22 6 SEA FILE-HCAPLUS ABB=ON PIJ=ON L16 AND (L18 OR L19 OR L20 OR  
L23 L21)  
L26 7 SEA FILE-HCAPLUS ABB=ON PIJ=ON (L17 OR L22)  
L27 25005 SEA FILE-HCAPLUS ABB=ON PIJ=ON "PRECIPITATION (CHEMICAL)\*+OLD  
L28 25005 SEA FILE-HCAPLUS ABB=ON PIJ=ON "PRECIPITATION (CHEMICAL)\*+OLD  
L29 133 SEA FILE-HCAPLUS ABB=ON PIJ=ON "PRECIPITATION (CHEMICAL) (L)  
L30 297 SEA FILE-HCAPLUS ABB=ON PIJ=ON "PRECIPITATION (CHEMICAL) (L)  
L31 1715 SEA FILE-HCAPLUS ABB=ON PIJ=ON "PRECIPITATION (CHEMICAL) (L)  
L32 77 SEA FILE-HCAPLUS ABB=ON PIJ=ON "PRECIPITATION (CHEMICAL) (L)  
L33 123 SEA FILE-HCAPLUS ABB=ON PIJ=ON "PRECIPITATION ENTHALPY\*+OLD/C  
L34 440 SEA FILE-HCAPLUS ABB=ON PIJ=ON "PRECIPITATION (CHEMICAL) (L)  
L35 670864 SEA FILE-HCAPLUS ABB=ON PIJ=ON "PRECIPITATION?  
L36 17575 SEA FILE-HCAPLUS ABB=ON PIJ=ON L8  
L37 6688 SEA FILE-HCAPLUS ABB=ON PIJ=ON L8 (L) (PREP OR PROC OR  
L38 RACT)/BL  
L39 951 SEA FILE-HCAPLUS ABB=ON PIJ=ON L38 AND (L14 OR L15 OR L18 OR  
L40 L19 OR L20 OR L21 OR L26 OR L27 OR L28 OR L29 OR L30 OR L31 OR  
L41 L32 OR L33 OR L34)  
L42 410 SEA FILE-HCAPLUS ABB=ON PIJ=ON L39 AND (L18 OR L19 OR L20 OR  
L43 L21)  
L44 356 SEA FILE-HCAPLUS ABB=ON PIJ=ON L40 AND ?CRYSTA?  
L45 350 SEA FILE-HCAPLUS ABB=ON PIJ=ON L41 AND (TEMPERATURE?)  
L46 342 SEA FILE-HCAPLUS ABB=ON PIJ=ON L42 AND ?TRANSITION?  
L47 6 SEA FILE-HCAPLUS ABB=ON PIJ=ON L43 AND (CRYSTAL? (SA) BENZOIC?)  
L48 86 SEA FILE-HCAPLUS ABB=ON PIJ=ON L37 AND (CRYSTAL? (SA) BENZOIC?)  
L49 13 SEA FILE-HCAPLUS ABB=ON PIJ=ON L47 AND (L14 OR L15 OR L18 OR  
L50 L19 OR L20 OR L21 OR L26 OR L27 OR L28 OR L29 OR L30 OR L31 OR  
L51 L32 OR L33 OR L34)  
L52 20 SEA FILE-HCAPLUS ABB=ON PIJ=ON (L23 OR L46 OR L49)  
L53 13 SEA FILE-HCAPLUS ABB=ON PIJ=ON L47 AND ?TRANSITION?  
L54 2280 SEA FILE-HCAPLUS ABB=ON PIJ=ON (L52 OR L50)  
L55 L19 OR L20 OR L21 OR L26 OR L27 OR L28 OR L29 OR L30 OR L31 OR  
L56 L32 OR L33 OR L34)  
L57 56 SEA FILE-HCAPLUS ABB=ON PIJ=ON L54 AND (TRANSITION (SA) BENZOI  
L58 C7)  
L59 56 SEA FILE-HCAPLUS ABB=ON PIJ=ON L63 AND (TRANSITION (SA) BENZOI  
L60 C7)  
L61 54 SEA FILE-HCAPLUS ABB=ON PIJ=ON L66 AND (TEMP? OR TMP)  
L62 29 SEA FILE-HCAPLUS ABB=ON PIJ=ON L67 AND TRANSITION TEMP?  
L63 10 SEA FILE-HCAPLUS ABB=ON PIJ=ON L67 AND TRANSITION TEMP? (SA) ?B  
L64 ENZOIC?  
L65 29 SEA FILE-HCAPLUS ABB=ON PIJ=ON (L68 OR L70)  
L66 49 SEA FILE-HCAPLUS ABB=ON PIJ=ON (L53 OR L71)  
L67 4 SEA FILE-HCAPLUS ABB=ON PIJ=ON ("P-HYDROXYBENZOIC ACID"/CN OR

"P-HYDROXYBENZOIC ACID 2-HEXYL DECYL ESTER"/CN OR "P-HYDROXYBEN  
ZOIC ACID ESTER GLUCOSIDE"/CN OR "P-HYDROXYBENZOIC ACID  
HYDRAZIDE"/CN OR P-HYDROXYBENZOIC-ACID-ESTER-GLUCOSIDE/CN)  
L91 479 SEA FILE-WPIX ABB=ON PIJ=ON (R00693 OR R18880 OR RABICZ OR  
L92 RAC900)/DCN  
L93 0 SEA FILE-WPIX ABB=ON PIJ=ON (5683-0-0-0 OR 119101-0-0-0 OR  
L94 769008-1-0-0 OR 804700-0-0-0)/DCRE  
L95 13 SEA FILE-WPIX ABB=ON PIJ=ON P/BIX, ABEX, BIE, TT (3A) HYDROXYBEN  
L96 ZOIC ACID/BIX, ABEX, BIE, TT (3A) ANHYDRIDE?/BIX, ABEX, BIE, TT  
L97 2037 SEA FILE-WPIX ABB=ON PIJ=ON P/BIX, ABEX, BIE, TT (3A) (HYDROXYBEN  
L98 ZOIC?/BIX, ABEX, BIE, TT OR SALICYLIC ACID/BIX, ABEX, BIE, TT)  
L99 192 SEA FILE-WPIX ABB=ON PIJ=ON PARABEN/BIX, ABEX, BIE, TT (2A) ACID/  
L100 BIX, ABEX, BIE, TT  
L101 2546 SEA FILE-WPIX ABB=ON PIJ=ON (L90 OR L91 OR L92 OR L93 OR L94  
L102 OR L95)  
L103 734 SEA FILE-WPIX ABB=ON PIJ=ON L96 AND (TRANSITION?/BIX, ABEX, BIE  
L104 X, TT (3A) TMP/BIX, ABEX, BIE, TT OR TEMP?/BIX, ABEX, BIE, TT)  
L105 71 SEA FILE-WPIX ABB=ON PIJ=ON L97 AND (PRECIPIT?/BIX, ABEX, BIE, TT  
L106 TT OR ISOLAT?/BIX, ABEX, BIE, TT)  
L107 2 SEA FILE-WPIX ABB=ON PIJ=ON L97 AND ?TRANSITION TEMP?/BIX, ABEX  
L108 , BIE, TT (SA) BENZOIC?/BIX, ABEX, BIE, TT  
L109 9 SEA FILE-WPIX ABB=ON PIJ=ON L98 AND ?TRANSITION?/BIX, ABEX, BIE  
L110 , TT  
L111 11 SEA FILE-WPIX ABB=ON PIJ=ON (L100 OR L101)

=> dup rem 1116,1121,1125,172,1102  
FILE 'HCAPIUS' ENTERED AT 13:21:13 ON 17 JAN 2007  
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.  
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.  
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PROCESSING COMPLETED FOR L116  
PROCESSING COMPLETED FOR L121  
PROCESSING COMPLETED FOR L125  
PROCESSING COMPLETED FOR L102  
L126 85 DUP REM L116 L121 L125 L72 L102 (9 DUPLICATES REMOVED)  
ANSWERS '11-73' FROM FILE HCAPIUS  
ANSWERS '74' FROM FILE BIOSIS  
ANSWERS '75-85' FROM FILE WPIX

=> d ibib abs hitind retable 1126 1-73;d ibib abs 1126 74;d all abeq tech 1126 75-  
85

L126 ANSWER 1 OF 85 HCAPIUS COPYRIGHT 2007 ACS ON STN DUPLICATE 1  
ACCESSION NUMBER: 2004:902327 HCAPIUS Full-text  
DOCUMENT NUMBER: 141:381390

TITLE: Process for the preparation of anhydrous

INVENTOR(S): p-hydroxybenzoic acid crystals  
Deno, Ryuzo; Kitayama, Masaya;

PATENT ASSIGNEE(S): Izumi, Nobutaka; Kikkawa, Masaharu

SOURCE: Kabushiki Kaisha Ueno Seiyaku Oyo Kenkyujo, Japan  
PCT Int. Appl., 24 pp.  
CODEN: PIXXD2

*lux*

DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO. KIND DATE APPLICATION NO. DATE  
 WO 2004092107 A1 20041028 WO 2004-JP5213 20040412  
 W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GR, GU, HK, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MY, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW  
 RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, AZ, BY, BG, KZ, MD, TD, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, GU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GN, GW, ML, MR, NE, NG, NI, TD, TG  
 EP 1614673 A1 20060111 EP 2004-726901 20040412  
 R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, R, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK, HR  
 CN 1605918 A 20060719 CN 2004-80016529 20040412  
 US 2006264670 A1 20061123 US 2005-553451 20051017  
 JP 2003-112494 A 20030417  
 WO 2004-JP5213 W 20040412

AB This document discloses a process for producing anhydrous crystals of p-hydroxybenzoic acid (I), which comprises the step of crystallizing and separating I from an aqueous solvent (e.g., water) at a temperature equal to or higher than the transition temperature of I. The transition temperature of I is 52°C to 54°C. I are used as raw materials for the preparation of liquid crystal polymers and the preparation of preservatives for pharmaceuticals and cosmetics. Thus, a mixture of I 200 g and water 800 g was heated to 95°C to give an aqueous solution of I; this solution was cooled slowly to 60°C to give 161.9 g anhydrous crystals of I which were collected; after drying at 70°C, 161.9 g anhydrous crystals of I were obtained.

IC ICM C07C051-43  
 ICS C07C065-03  
 OC 45-4 (Industrial Organic Chemicals, Leather, Fats, and Waxes)  
 IT 99-96-7D, p-Hydroxybenzoic acid, salts  
 RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PYP (Physical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)  
 (process for preparation of anhydrous p-hydroxybenzoic acid crystals by acidic precipitation of p-hydroxybenzoic acid salt from aqueous solvent at temperature equal to or higher than transition temperature of p-hydroxybenzoic acid)

IT 16782-08-4, Potassium p-hydroxybenzoate  
 RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)  
 (process for preparation of anhydrous p-hydroxybenzoic acid crystals by crystallizing and separating p-hydroxybenzoic acid from aqueous solvent at temperature equal to or higher than transition temperature of p-hydroxybenzoic acid)  
 IT 99-96-7E, p-Hydroxybenzoic acid, preparation  
 RL: PEP (Physical, engineering or chemical process); PRP (Properties); PUR (Purification or recovery); PYP (Physical process); PREP (Preparation);

PROC (Process)  
 (process for preparation of anhydrous p-hydroxybenzoic acid crystals by crystallizing and separating p-hydroxybenzoic acid from aqueous solvent at temperature equal to or higher than transition temperature of p-hydroxybenzoic acid)

RETABLE  
 Referenced Author (RAU) | Year | VOL | PG | Referenced Work | Referenced  
 (RNY) | (RVL) | (RPG) | (RWR) | File  
 R-Tech Ueno Ltd | 2002 | | | IWO 0285835 A1 |  
 R-Tech Ueno Ltd | 2002 | | | JJP 2002316969 A | HCAPLUS

L126 ANSWER 2 OF 85 HCAPLUS COPYRIGHT 2007 ACS on STN DUPLICATE 2  
 2004:993145 HCAPLUS Full-text  
 141:397285  
 Manufacture of aromatic hydroxycarboxylic acids by liquid-phase Kolbe-Schmitt reaction

INVENTOR(S):  
 Ueno, Ryuzo; Kitayama, Masaya;  
 Izumiuchi, Nobutaka; Tanigawa, Katsunori;  
 Kitaka, Masaharu; Otsuka, Ryoichi  
 Ueno Fine Chemicals Industry Ltd., Japan  
 Jpn. Kokai Tokkyo Koho, 9 pp.  
 CODEN: JKKXAF

DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO. KIND DATE APPLICATION NO. DATE  
 JP 2004323475 A 20041118 JP 2003-123805 20030428  
 CN 1569794 A 20050126 CN 2004-10038710 20040428  
 JP 2003-123805 A 20030428

PRIORITY APPL. INFO.:  
 OTHER SOURCE(S): CASREACT 141:397285  
 AB Aromatic hydroxycarboxylic acids are manufactured by treatment of aromatic hydroxy compound alkali metal salts with CO2 in tanks having stirring shafts installed vertically in the center and stirring blades rotatable along side walls and bottoms in the presence of media where the salts are not substantially dissolved. Thus, aqueous NaOH solution was mixed with β-naphthol in the aforementioned tank to give aqueous β-naphthol Na salt solution, which was mixed with gas oil, dehydrated, and treated with CO2 to give 41.24 2-hydroxy-3-naphthoic acid.

IC ICM C07C051-15  
 ICS C07C065-03; C07C065-11  
 OC 45-4 (Industrial Organic Chemicals, Leather, Fats, and Waxes)

L126 ANSWER 3 OF 85 HCAPLUS COPYRIGHT 2007 ACS on STN DUPLICATE 3  
 2001:319853 HCAPLUS Full-text  
 134:327892  
 Preparation of granules of 2-hydroxynaphthalene-3-carboxylic acid

INVENTOR(S):  
 Ueno, Ryuzo; Kitayama, Masaya;  
 Izumiuchi, Nobutaka; Nara, Syungo;  
 Kitaka, Masaharu  
 K. K. Ueno Seiyaku Oyo Kenkyujo, Japan  
 PCT Int. Appl., 25 pp.  
 CODEN: PIXND2  
 Patent  
 Japanese

PATENT ASSIGNEE(S):  
 SOURCE:  
 DOCUMENT TYPE:  
 LANGUAGE:

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001030737	A1	20010503	WO 2000-JP7260	20001019
W: CA, CN, JP, KR, US				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
CA 2356928	A1	20010503	CA 2000-2356928	20001019
EP 1142861	A1	20011010	EP 2000-969880	20001019
EP 1142861	B1	20060614		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI, CY				
JP 1697414	B2	20050921	JP 2001-533094	20001019
AT 329835	T	20060715	AT 2000-969880	20001019
TW 524797	B	20030321	TW 2000-89122216	20001023
US 6562998	B1	20030513	US 2001-869143	20010626
			JP 1999-303833	A 19991026
			WO 2000-JP7260	W 20001019

PRIORITY APPROPRIATE INFO.:

AB This document discloses granules of 2-hydroxynaphthalene-3-carboxylic acid, characterized as having an average particle diameter of 150 µm or more and a hardness of 70 g to 3000 g; and a method for preparing said granules, characterized as comprising subjecting a powder of 2-hydroxynaphthalene-3-carboxylic acid to dry compression to give a formed product, crushing the product and classifying the crushed product. The title compound is an intermediate for dyes. The granules of 2-hydroxynaphthalene-3-carboxylic acid is significantly reduced in scattering property.

IC ICM C07C065-11

ICS C07C051-00

CC 41-9 (Dyes, Organic Pigments, Fluorescent Brighteners, and Photographic Sensitizers)

RETABLE

Referenced Author (RAU)	Year	VOL	PG	Referenced Work (RWP)	Referenced File
Daiel Chemical Industri	1995			IJP 1143462 A	
Kabushiki Kaisha Ueno S				IUS 4239813 A	
Kabushiki Kaisha Ueno S				IJP 5479257 A	
Kabushiki Kaisha Ueno S				IGB 2008090 A	
Kabushiki Kaisha Ueno S	1984			IJP 59196841 A	
Kabushiki Kaisha Ueno S	1986			IJP 61212533 A	
Kabushiki Kaisha Ueno S	1993			IJP 05294862 A	
Kabushiki Kaisha Ueno S	2000			IWO 0068177 A1	

L126 ANSWER 4 OF 85 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2006:360565 HCAPLUS Full-text

DOCUMENT NUMBER: 145:111227

TITLE: Phase equilibria and thermodynamics of

P-hydroxybenzoic acid

Nordstrom, Fredrik L.; Rasmuson, Åke C.

Department of Chemical Engineering and Technology,

Royal Institute of Technology, Stockholm, SE-100 44,

Swed.

JOURNAL OF Pharmaceutical Sciences (2006), 95(4),

748-760

CODEN: JPMSAE; ISSN: 0022-3549

PUBLISHER: Wiley-Liss, Inc.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The prevalence of phases and associated solubilities of p-hydroxybenzoic acid have been investigated in methanol, acetonitrile, acetic acid, acetone, water, and Et acetate at temps. from 10 to 50°C. Thermodyn. data was acquired through determination of van't Hoff enthalpy of solution, enthalpy of fusion, and melting temperature. Indications of polymorphic enantiotropy were found primarily through solubility anal. and FTIR-ATR. A comprehensive thermodyn. investigation disclosed correlation between the van't Hoff enthalpy of solution and the solubility in different solvents. A higher solubility is linked to a lower van't Hoff enthalpy of solution. A thermodyn. anal. to discriminate between different solid phases is presented.

CC 69-5 (Thermodynamics, Thermochemistry, and Thermal Properties)

IT Phase transition temperature

(for enantiotropic transition of p-hydroxybenzoic acid; phase equilibrium and thermodyn. of p-hydroxybenzoic acid)

IT Fusion enthalpy

Melting point

(of p-hydroxybenzoic acid; phase equilibrium and thermodyn. of p-hydroxybenzoic acid)

IT 99-96-7, p-Hydroxybenzoic acid, properties 26159-92-9,

p-Hydroxybenzoic acid monohydrate  
RL: FMU (Formation, unclassified); PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); FORM (Formation, nonpreparative); PROC (Process)  
(Phase equilibrium and thermodyn. of p-hydroxybenzoic acid)

IT 145395-99-9

RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process)  
(Phase equilibrium and thermodyn. of p-hydroxybenzoic acid)

RETABLE

Referenced Author (RAU)	Year	VOL	PG	Referenced Work (RWP)	Referenced File
Burger, A	1979	III	1259	Mikrochim Acta (Wien)	
Colapietro, M	1979	IB35	12177	Acta Cryst	HCAPLUS
Ebisuzaki, Y	1987	187	16659	IJ Chem Phys	HCAPLUS
Exling, M	2004	149	1486	IJ Chem Eng Data	HCAPLUS
Fukuyama, K	1973	146	1804	Bull Chem Soc Japan	HCAPLUS
Giron, D	1995	1248	11	Thermochimica Acta	HCAPLUS
Gu, C	2001	190	11277	IJ Pharm Sci	HCAPLUS
Heath, E	1992	148	11960	Acta Cryst C	HCAPLUS
Hollenbeck, R	1980	169	1241	IJ Pharm Sci	HCAPLUS
Kariuki, B	2000	139	124	Angew Chem Int Ed	HCAPLUS
Manzo, R	1990	179	11109	IJ Pharm Sci	HCAPLUS

L126 ANSWER 5 OF 85 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2005:324211 HCAPLUS Full-text

DOCUMENT NUMBER: 142:356057

TITLE: Aromatic liquid-crystal polyester and resin

composition contained thereof

Ueno, Ryuzo; Kitayama, Masaya;

Kato, Hiroyuki; Terada, Hiroaki;

Kabushiki Kaisha Ueno Seiyaku Oyo Kenkyujo, Japan

PCT Int. Appl., 24 pp.

CODEN: PIXAD2

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:



aminocarbonyl groups, carboxyl groups and groups represented by the formulas - (CONH)n-X1, -CO-O-X2, and Q1; and at least one of Y1 and Y2 is an aminocarbonyl group; wherein n = 1, 2; X1 = Cl-20 (un)substituted and optionally branched aliphatic group optionally possessing unsatd. bonds, (un)substituted aromatic group, (un)substituted heterocyclyl possessing conjugated double bonds; X2 = Cl-20 (un)substituted and optionally branched aliphatic group optionally possessing unsatd. bonds; the ring A = (un)substituted aromatic group, (un)substituted heterocyclyl possessing conjugated double bonds) is prepared by amidation of the corresponding hydroxynaphthalenecarboxylic acid derivative A novel cyanonaphthol derivative represented by the formula (II) [Y7 and Y8 independently represent a group selected from the group consisting of cyano group, groups represented by the formulas -(CONH)n-X1, -CO-O-X2, and Q1, carboxyl group, and aminocarbonyl group; and at least one of Y7 and Y8 is a cyano group] or salts thereof is prepared by treating the (aminocarbonyl)naphthol derivative with POCl3 for converting the aminocarbonyl group into the cyano group. Thus, 4.6 g 2-methoxy-3-(phenylaminocarbonyl)naphthalene-6-carboxylic acid was suspended in 45 g THF, treated with 3.6 g SOCl2 and allowed to react at 45° for 1 h, followed by distilling off excess SOCl2 together with the solvent to give a residue (acid chloride). The residue was dissolved in 50 g THF and warmed to 45°, followed by blowing NH3(g) into the solution, and the resulting mixture was allowed to react for 1 h to give, after filtration of the precipitated crystals, 3.0 g 2-methoxy-3-(phenylaminocarbonyl)naphthalene-6-carboxamide (III). III (3.0 g) was suspended in 40 g 1,2-dichlorobenzene, treated with 1.0 g POCl3, allowed to react at 140° for 1 h, cooled to 80°, treated with 50 g H2O, thoroughly stirred, to give, after filtration of the precipitated crystals, washing with MeOH, and drying, 1.8 g 2-methoxy-3-(phenylaminocarbonyl)-6-cyanonaphthalene as a white powder.

IC C07C233-66

ICS C07C255-53; C07C255-54; C07C255-55; C07C255-57; C07C253-20;

C07C273-18; C07C275-54; C07D277-66

25-24 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)

Section cross-reference(s): 28

74-88-4, Methyl iodide, reactions 108-24-7, Acetic anhydride

137-07-5, 2-Aminobenzenethiol 7664-41-7, Ammonia, reactions

183963-27-1 183963-32-8 213673-77-9 374729-40-5 838873-25-9

838873-26-0 838873-27-1 838873-28-2 838873-29-3 838873-30-6

838873-31-7 838873-32-8 838873-33-9 838873-34-0 838873-35-1

838873-36-2 838873-37-3 838873-38-4 838873-39-5 838873-41-9

RU: RCT (Reactant); RACT (Reactant or reagent)

(Preparation of (aminocarbonyl)naphthol derivative by amidation of

carboxynaphthol derivative and its conversion into cyanonaphthol derivative

by dehydration with phosphorus oxychloride)

RETABLE  
Referenced Author | Year | VOL | PG | Referenced Work | Referenced  
(RAU) | (RPV) | (RVL) | (RPG) | (RWK) | File

Referenced Author	Year	VOL	PG	Referenced Work	Referenced
(RAU)	(RPV)	(RVL)	(RPG)	(RWK)	File
Gao, Y	12001	144	12869	Journal of Medicinal Chemistry	HCAP1US
Interchemical Corp	11967		IUS 3335168 A		HCAP1US
Kabushiki Kaisha Ueno S11996			IUS 5786323 A		HCAP1US
Kabushiki Kaisha Ueno S11996			IUS 5847233 A		HCAP1US
Kabushiki Kaisha Ueno S11996			IEP 765858 A1		HCAP1US
Kabushiki Kaisha Ueno S11996			IWO 9632366 A1		HCAP1US
Kabushiki Kaisha Ueno S11998			IUS 6072042 A		HCAP1US
Kabushiki Kaisha Ueno S11998			IEP 882705 A1		HCAP1US
Kabushiki Kaisha Ueno S11998			IWO 9816498 A1		HCAP1US
Kabushiki Kaisha Ueno S12000			IWO 0068178 A1		HCAP1US
Kabushiki Kaisha Ueno S12000			IEP 1095930 A1		HCAP1US
Kabushiki Kaisha Ueno S12000			IUS 6284924 B1		HCAP1US

L126 ANSWER 7 OF 85: HCAP1US COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2005:428282 HCAP1US Full-text

DOCUMENT NUMBER: 142:464777

TITLE: Liquid crystalline polyester compositions with good

antifungal properties and mechanical strength, their

manufacture, and moldings using them

Ueno, Ryuzo; Kitayama, Masaya;

Kato, Hiroyuki; Saito, Shoji

Ueno Fine Chemicals Industry Ltd., Japan

Jpn. Kokai Tokkyo Koho, 15 pp.

CODEN: JKXXAF

PATENT

Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2005126520	A	20050519	JP 2003-361956	20031022
PRIORITY APPL. INFO.:			JP 2003-361956	20031022

AB The comps., useful for crossflow fans of air conditioners, contain liquid

crystalline polyesters with m.p. 200-290° (measured by DSC) and 0.01-10 phr ±1

p-hydroxybenzoates. Thus, mixing hydrominone-p- hydroxybenzoic acid-6-

hydroxy-2-naphthoic acid-terephthalic acid copolymer with m.p. 218°, 0.1 phr

p-hydroxybenzoic acid Bu ester, and 42.9 phr glass fibers (ft 562) and

extruding at 235° gave pellets, which were injection-molded to give test

pieces showing tensile strength 239 MPa, tensile modulus 16 GPa (ASTM D 790),

and mold growth area 525% (JIS Z 2911).

IC ICM C08L067-00

ICS C08K005-101; F24F001-00

OC 38-3 (Plastics Fabrication and Uses)

IT 90967-43-4P, Hydroquinone-p-hydroxybenzoic acid-6-hydroxy-2-

naphthoic acid-terephthalic acid copolymer

RU: IMF (Industrial manufacture); POF (Polymer in formulation); TEM

(Technical or engineered material use); PREP (Preparation); USSS (Uses)

(liquid crystalline polyester compns. with good antifungal properties and

mech. strength for moldings)

L126 ANSWER 8 OF 85 HCAP1US COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2005:1135406 HCAP1US Full-text

DOCUMENT NUMBER: 142:219057

TITLE: Process for the dehydration of hydrous sodium

β-naphtholate

Ueno, Ryuzo; Kitayama, Masaya;

Izumichi, Nobutaka; Ohta, Akira

Kabushiki Kaisha Ueno Seiyaku Oyo Kenkyujo, Japan

Eur. Pat. Appl., 11 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1506950	A1	20050216	EP 2004-19324	20040813
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,				
IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, EG, CZ, EE, HU, PL, SK, HR				

JP 2005060316 A 20050310 JP 2003-293058 20030813  
 US 2005043564 A1 20050224 US 2004-915354 20040811  
 CN 2005043564 A 20050615 CN 2004-10056673 20040813  
 PRIORITY APPLN. INFO.: JP 2003-293058 A 20030813  
 OTHER SOURCE(S): CASREACT 142:219057

AB A process for dehydrating hydrous sodium  $\beta$ -naphtholate comprises: heating the hydrous sodium  $\beta$ -naphtholate or a mixture of the hydrous sodium  $\beta$ -naphtholate and  $\beta$ -naphthol which comprises 20.2 mol of  $\beta$ -naphthol per one mole of sodium  $\beta$ -naphtholate in a solvent (e.g., kerosene) at 260-300°C under an inert gas. This process makes it possible to dehydrate hydrous sodium  $\beta$ -naphtholate thoroughly in a short time with less production of tarry byproducts and makes it a preferred intermediate for CO<sub>2</sub> carboxylation in the manufacture of 2-hydroxy-3-naphthoic acid.

IC ICM C07C037-70

CC 25-24 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)

Section cross-reference(s): 45

# RETABLE

Referenced Author (RAU)	Year	VOL	PG	Referenced Work (RPY) (RVL) (RPG)	Referenced (RWK)	File
Basf Ag	1976			GB 1443987 A		HCAPLUS
Basf Ag	1977			GB 1464418 A		HCAPLUS
Cone, L	1924			US 1503984 A		HCAPLUS
Kx Ueno Seiyaku	1989			EP 0327221 A		HCAPLUS
Ueno, R	1980			US 4239913 A		HCAPLUS

L126 ANSWER 9 OF 85 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2005:410931 HCAPLUS Full-text

DOCUMENT NUMBER: 143:97732

TITLE: Main-chain liquid-crystalline ionomers bearing

potassium sulfonate groups

Meng, Fan-Bao; Zhang, Bao-Yan; Xu, Ye; Liu, Jing-Yan

Research Centre for Molecular Science and Engineering,

Northwestern University, Shenyang, 110004, Peop. Rep.

China

JOURNAL OF APPLIED POLYMER SCIENCE, (2005), 96(6),

2021-2026

CODEN: JAPNAB; ISSN: 0021-8995

John Wiley & Sons, Inc.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB A series of thermotropic main-chain liquid-crystalline (LC) ionomers were prepared, which contained potassium sulfonate groups pendant to the chains. The polymers were prepared in an esterifying reaction with potassium ion contents ranging between 0 and 3.9 wt %. The content of potassium ion was characterized by spectrophotometric anal. with sodium tetraphenylboron as the titrant. Chemical structures were determined by various expl. techniques including Fourier transform IR spectroscopy and <sup>1</sup>H-NMR. LC properties were characterized by differential scanning calorimetry, polarizing optical microscopy, and X-rays. All of the polymers displayed nematic or smectic mesophases. With increasing potassium sulfonate ionic concentration in the polymers, the melting temp. and isotropic transition temp. changed little, whereas the temperature of the smectic A-nematic phase transition increased. The ionic aggregation was tangled with the rigid mesogenic groups of LC segments to form multiple block domains, leading the soft main chains to fold and form a lamellar structure due to their electrostatic interactions.

CC 33-5 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 75

IT 99-96-7, 4-Hydroxybenzoic acid, reactions 107-21-1,  
 Ethylene glycol, reactions 111-50-2, Hexanedioyl dichloride  
 163205-74-1, 2-Hydroxy-5-carboxybenzenesulfonic acid  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (Synthesis and phase transitions of main-chain liquid-crystalline  
 ionomers bearing potassium sulfonate groups)

# RETABLE

Referenced Author (RAU)	Year	VOL	PG	Referenced Work (RPY) (RVL) (RPG)	Referenced (RWK)	File
Barmatov, E	2001	39		13953	J Polym Sci Part A: Macromolecules	HCAPLUS
Bhowmik, P	1998	31		1621	Macromolecules	HCAPLUS
Dutta, D	1996	37		429	Polymer	HCAPLUS
Han, H	1995	3		199	Trends Polym Sci	HCAPLUS
He, J	1999	40		1959	Polymer	HCAPLUS
Lin, Q	2002	51		1540	Polym Int	HCAPLUS
Meng, F	2003	44		13935	Polymer	HCAPLUS
Molnar, A	1992	25		15774	Macromolecules	HCAPLUS
Pebmann, M	2002	203		363	Macromol Chem Phys	HCAPLUS
Weiss, R	1990	41		91	J Appl Polym Sci	HCAPLUS
Weiss, R	2000	41		13471	Polymer	HCAPLUS
Wilber, G	1996	197		13259	Macromol Chem Phys	HCAPLUS
Xue, Y	1997	30		3803	Macromolecules	HCAPLUS
Xue, Y	1998	31		1808	Macromolecules	HCAPLUS
Xue, Y	1998	31		17806	Macromolecules	HCAPLUS
Zhang, B	1992	30		91	J Polym Sci Part Pol	HCAPLUS
Zhang, B	1992	30		1989	J Polym Sci Polym	HCAPLUS
Zhang, B	2003	36		13320	Macromolecules	HCAPLUS

L126 ANSWER 10 OF 85 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2005:509857 HCAPLUS Full-text

DOCUMENT NUMBER: 144:274873

TITLE: Synthesis and characterization of poly(butylene

terephthalate)/p-hydroxybenzoic acid thermotropic

copolyester by in-situ acetylation

Guo, Chaoyang; Mao, Lianbo; Zhou, Xingping; Xie,

Xiaolin

Department of Chemistry, Huazhong University of

Science and Technology, Wuhan, 430074, Peop. Rep.

China

Suliao Gongye (2004), 32(1), 4-6, 25

CODEN: SUGOF9; ISSN: 1005-5770

Suliao Gongye Bianjibu

DOCUMENT TYPE: Journal

LANGUAGE: Chinese

AB Poly(butylene terephthalate)/p-hydroxybenzoic acid copolymers (PBT/PHB) were synthesized from PBT and PHB by in-situ acetylation. Effects of molar ratio of PBT to PHB on phase transition and liquid crystallinity of the copolyester were studied. The PBT/PHB copolymers had nematic liquid crystalline behavior and two glass transition temps. when the mole fraction of PHB was 20-80%. When the mole fraction of PHB was up to 60%, the PBT/PHB copolymers had two melting temps., which were related to PBT-rich phase and PHB-rich phase in the copolyester. Compared with the ester interchange of p-acetoxypbenzoic acid and PBT, the in-situ acetylation of PHB was useful to restrain formation of long PHB blocking chains.

CC 37-3 (Plastics Manufacture and Processing)

Section cross-reference(s): 75

IT Glass transition temperature

Thermal properties

(of PBT/p-hydroxybenzoic acid thermotropic copolyester



synthesized by hydrolytic decomposition of poly(butylene terephthalate) and in-situ acetylation of p-hydroxybenzoic acid)

IT 62228-47-7P, 1,4-Butanediol-p-hydroxybenzoic acid-terephthalic acid copolymer

RI: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation) (partial assumed monomers; synthesis of PBT/p-hydroxybenzoic acid thermotropic copolyester by in-situ acetylation)

IT 108-24-7, Acetic anhydride

RI: RGT (Reagent); RACT (Reactant or reagent) (synthesis of PBT/p-hydroxybenzoic acid thermotropic copolyester by in-situ acetylation)

LI26 ANSWER 11 OF 85 HCAPLUS COPYRIGHT 2007 ACS on STN  
ACCESSION NUMBER: 2003:472481 HCAPLUS Full-text  
DOCUMENT NUMBER: 139:44203

TITLE: Naphthol derivative as positive-charging charge control agent for electrophotographic toner

INVENTOR(S): Ueno, Ryuzo; Kitayama, Masaya;

PATENT ASSIGNEE(S): Minami, Kenji; Wakamori, Hiroyuki; Yonetani, Nobuhiro

SOURCE: Kabushiki Kaisha Ueno Seiyaku Oyo Kenkyujo, Japan

PCT Int. Appl., 27 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Japanese

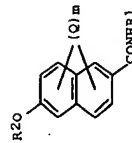
LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003050078	A1	20030619	WO 2002-JP12907	20021210
W: CN, KR, US				
RW: AT, BE, BG, PT, SE, SI, SK, TR				
JP 2003182335	A	20030703	JP 2001-380057	20011213
EP 1462440	A1	20040929	EP 2002-788762	20021210
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, FI, CY, TR, BG, CZ, EE, SK				
CN 1617851	A	20050518	CN 2002-827866	20021210
US 2005119487	A1	20050602	US 2003-498224	20021210
PRIORITY APPL. INFO.: JP 2001-380057 A 20011213				
WO 2002-JP12907 W 20021210				
OTHER SOURCE(S): MARPAT 139:44203				

GI



AB The invention relates to a novel naphthol derivative represented by the following general formula I (R1 = C1-20-aliphatic hydrocarbon, heterocycle; R2 = H, alkali metal, C1-6-alkyl, acyl, phenylalkyl; Q = C1-6-alkyl, alkoxy, halo, nitro, nitroso, amino, sulfo; m = 0-3) useful as a pos.-charging charge control agent. Also provided is an electrophotog. toner containing a charge control agent comprising the above novel naphthol derivative

IC ICM C07C235-66

ICS C07D215-40; G03G009-097

CC 74-3 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

IT 62-53-3, Aniline, reactions 74-88-4, Methyl iodide, reactions

104-94-9, p-Anisidine 108-24-7, Acetic anhydride, 111-86-4,

n-Octylamine 124-22-1, n-Dodecylamine 124-30-1, n-Octadecylamine

153-78-6, 2-Amino-2-fluorene 578-66-5, 8-Aminoquinoline 1310-73-2, Sodium

hydroxide, reactions 7719-09-7, Thionylchloride 16712-64-4,

2-Hydroxynaphthalene-6-carboxylic acid

RI: RCT (Reactant); RACT (Reactant or reagent)

(preparation of naphthol derivative suitable as pos.-charging charge control agent for electrophotog. toner)

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Mitsubishi Chemical Corl	1996	1	JP 08-44114 A	HCAPLUS	HCAPLUS
Mitsui Chemicals Ltd	1999	1	JP 11-158135 A	HCAPLUS	HCAPLUS
Orient Chemical Industrl	1994	1	JP 06-35229 A	HCAPLUS	HCAPLUS
Orient Chemical Industrl	1994	1	IUS 540774 A.	HCAPLUS	HCAPLUS
Orient Chemical Industrl	1994	1	IEP 579207 A1	HCAPLUS	HCAPLUS

LI26 ANSWER 12 OF 85 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2003:434633 HCAPLUS Full-text

DOCUMENT NUMBER: 139:7395

TITLE: Liquid-crystal polyester resins

INVENTOR(S): Ueno, Ryuzo; Kitayama, Masaya;

PATENT ASSIGNEE(S): Kometsani, Kiichi; Kato, Hiroyuki; Ueda, Kazunori

SOURCE: Kabushiki Kaisha Ueno Seiyaku Oyo Kenkyujo, Japan

PCT Int. Appl., 23 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003046043	A1	20030605	WO 2002-JP12257	20021125
W: CN, KR, US				
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR				
JP 2003160716	A	20030606	JP 2001-359350	20011126
EP 1462468	A1	20040929	EP 2002-781831	20021125
EP 1462469	B1	20060802		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI, CY, TR, BG, CZ, EE, SK				
CN 1615325	A	20050511	CN 2002-827477	20021125
AT 335031	T	20060815	AT 2002-781831	20021125
TW 248464	B	20060201	TW 2002-91134272	20021126
US 2005054811	A1	20050310	US 2004-496490	20041007
US 6984712	B2	20060110		

## PRIORITY APPLN. INFO.:

JP: 2001-359350 A 20011126  
WO 2002-JP12257 W 20021125

AB The polyester resins contain monomer units derived from 2-hydroxy-3-naphthoic acid and/or 2-hydroxynaphthalene-3,6-dicarboxylic acid in an amount of 1-5000 mmol% based on all structural monomer units in the polyester resins and an alkali metal compound in an amount of 10-3000 ppm, in terms of alkali metal amount, of all monomer units in the polyester resins. The liquid-crystal polyester resins have improved heat resistance and satisfactory colorability and mech. properties.

IC ICM C08G063-02

CC 35-5 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 75

IT 536746-64-2P 536746-65-3P 536746-67-5P

536746-69-7P 536746-71-1P

RL: IMF (Industrial manufacture); PRP (Properties); PREP (Preparation) (liquid-crystal polyesters with improved colorability, heat resistance, and mech. properties)

## RETABLE

Referenced Author	Year	VOL	PG	Referenced Work	Referenced
(RAU)	(RPY)	(RVL)	(RPG)	(RWK)	File

Kabushiki Kaisha Ueno S12001				WO 0068291 A1	HCAPLUS
Kabushiki Kaisha Ueno S12001				EP 1103573 A1	HCAPLUS

L126 ANSWER 13 OF 85 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2003:166980 HCAPLUS Full-text

DOCUMENT NUMBER: 138:204837

TITLE: Preparation of p-hydroxybenzoic acid

INVENTOR(S): Ueno, Ryuzo; Kitayama, Masaya;

Izumiji, Nobutaka; Tanigawa, Katsumori

Ueno Fine Chemicals Industry Ltd., Japan

Jpn. Kokai Tokkyo Koho, 6 pp.

CODEN: JKXXAF

PATENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003064020	A	20030305	JP 2001-252775	20010823
OTHER APPLN. INFO.:			JP 2001-252775	20010823
OTHER SOURCE(S):			CASREACT 138:204837; MARPAT 138:204837	
AB The compound is prepared by dehydration of PhOK with agents lowering m.p. of PhOK as mixts. and reaction with CO <sub>2</sub> . PhOK was dehydrated with potassium 2,3,6-trimethylphenoxide at 250° for 4 h, mixed with PhOH, and reacted under 0.6 MPa CO <sub>2</sub> at 240° for 1 h to give 77% p-hydroxybenzoic acid.				
IC ICM C07C051-15				
ICS C07C065-03				
CC 25-17 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)				
IT 99-96-7P, p-Hydroxybenzoic acid, preparation				
RL: IMF (Industrial manufacture); SEN (Synthetic preparation); PREP (Preparation) (Preparation of hydroxybenzoic acid by dehydration of PhOK with potassium methylphenoxides and carboxylation with CO <sub>2</sub> )				

L126 ANSWER 14 OF 85 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2002:975705 HCAPLUS Full-text

DOCUMENT NUMBER: 138:57063

TITLE: Thermotropic liquid crystal polyesters with reduced

anisotropy in mechanical properties, their compositions, and their molded products

Ueno, Ryuzo; Kitayama, Masaya;

Yonetani, Kiichi; Kato, Hiroyuki; Asahara, Motoki

Ueno Fine Chemicals Industry Ltd., Japan

Jpn. Kokai Tokkyo Koho, 10 pp.

CODEN: JKXXAF

PATENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002371127	A	20021226	JP 2001-181647	20010615
WO 2002102874	A1	20021227	WO 2002-JP5782	20020611

W: CN, KR, US

RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR

EP 1422256

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PATENT NO. 2002322118  
 KIND A  
 DATE 20021108  
 APPLICATION NO. JP 2001-122934  
 DATE 20010420  
 PRIORITY APPLIN. INFO.: JP 2001-122934  
 DATE 20010420  
 AB The granules are characterized by that average particle size 2150  $\mu$ m and hardness 70-3000 g. The granules are manufactured by dry-compressing powdered sorbic acid or its alkali metal salts, pulverizing the formed compds., and classifying the granules. Sorbic acid with particle size 40-70  $\mu$ m was compressed at 1.7 ton/cm, pulverized, and classified by mesh screens to give granule samples having average particle size 1601  $\mu$ m to 123  $\mu$ m.

IC IC4 C07C051-43  
 ICS B01J002-22; C07C057-10; A23L003-3508  
 CC 23-16 (Aliphatic Compounds)

L126 ANSWER 16 OF 85 HCAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 2002:847733 HCAPLUS Full-text  
 DOCUMENT NUMBER: 137:352789  
 TITLE: Granulated naphthols with reduced scattering properties and manufacture of the granules

INVENTOR(S): Ueno, Ryuzo; Kitayama, Masaya; Izumichi, Nobutaka; Kittaka, Shoji  
 PATENT ASSIGNEE(S): Ueno Seiyaku Oyo Kenkyujo K. K., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.  
 CODEN: JKXXAF

DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO. 2002322109  
 KIND A  
 DATE 20021108  
 APPLICATION NO. JP 2001-122935  
 DATE 20010420  
 PRIORITY APPLIN. INFO.: JP 2001-122935  
 DATE 20010420  
 AB Title granules with average particle size 2150  $\mu$ m and hardness 50-3000 g are manufactured by dry-pressing powdered naphthols, pulverizing, and sieving. Thus, 2-hydroxynaphthalene-6-carboxylic acid powder was pressed at 0.7 ton/cm, pulverized, and sieved to give granules (average particle size 1161  $\mu$ m, hardness 727 g), which showed less sliding properties than the powder, but showed as good solubility as the powder. in aqueous NaOH.

IC IC4 C07C039-14  
 ICS B02C019-12; C07C037-84; C07C051-43; C07C065-11  
 CC 23-24 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)

L126 ANSWER 17 OF 85 HCAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 2002:827449 HCAPLUS Full-text  
 DOCUMENT NUMBER: 137:325238  
 TITLE: Preparation of p-hydroxybenzoic acid or its ester granules without caking and scattering

INVENTOR(S): Ueno, Ryuzo; Kitayama, Masaya; Izumichi, Nobutaka; Kittaka, Shoji  
 PATENT ASSIGNEE(S): Ueno Fine Chemicals Industry Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 11 pp.  
 CODEN: JKXXAF

DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO. 2002316969  
 KIND A  
 DATE 20021031  
 APPLICATION NO. JP 2001-122933  
 DATE 20010420  
 WO 2002085835  
 W: BR, CA, CN, IL, IN, KR, MX, US  
 RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR

CA 2413514  
 A1 20021218  
 CA 2002-2413514  
 BR 2002005089  
 A1 20030318  
 BR 2002-5089  
 EP 1380563  
 A1 20040114  
 EP 2002-720482  
 R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI, CY, TR

TW 583020  
 B 20040411  
 TW 2002-91107917  
 US 2003160205  
 A1 20030828  
 US 6673962  
 B2 20040106  
 US 2002-311633  
 20021218

PRIORITY APPLIN. INFO.: JP 2001-122933  
 WO 2002-JP3851  
 A 20010420  
 W 20020418

AB The granules are characterized by that average particle size  $\geq 150 \mu$ m and hardness 10-3000 g. The granules are manufactured by dry-compressing powdered p-hydroxybenzoic acid or their esters, pulverizing the formed compds., and classifying the granules. P-hydroxybenzoic acid with particle size 40-70  $\mu$ m was compressed at 0.79 ton/cm, pulverized, and classified by mesh screens to give granule samples having average particle size 2708  $\mu$ m to 129  $\mu$ m.

IC IC4 C07C069-88  
 ICS B01J002-00; B01J002-22; C07C051-43; C07C065-03; C07C067-52  
 CC 25-17 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)  
 IT 99-96-7P, p-Hydroxybenzoic acid, preparation

RL: PEP (Physical, engineering or chemical process); PNU (Preparation, unclassified); PYP (Physical process); PREP (Preparation); PROC (Process) (preparation of p-hydroxybenzoic acid or its ester granules without caking and scattering)

L126 ANSWER 18 OF 85 HCAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 2002:686478 HCAPLUS Full-text  
 DOCUMENT NUMBER: 137:216765  
 TITLE: Recovery method of alkali metal salts in preparation of aromatic hydroxycarboxylic acids

INVENTOR(S): Ueno, Ryuzo; Kitayama, Masaya; Izumichi, Nobutaka; Otsuka, Ryochi; Yonetani, Nobuhiro  
 PATENT ASSIGNEE(S): Ueno Fine Chemicals Industry Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.  
 CODEN: JKXXAF

DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO. 2002255891  
 KIND A  
 DATE 20020911  
 APPLICATION NO. JP 2001-51984  
 DATE 20010227  
 PRIORITY APPLIN. INFO.: JP 2001-51984  
 DATE 20010227  
 OTHER SOURCE(S): CASREACT 137:216765

AB Alkali metal salts are recovered by treating of aromatic hydroxycarboxylic acid alkali metal salts with mineral acids, addition of H<sub>2</sub>O-soluble organic solvents in the resulting solns. or slurries, crystallization of mineral acid alkali metal salts, and removal of the crystals from the aqueous solution A

IC mixture of 414 g phenol potassium salt and 196 g phenol was treated with CO<sub>2</sub> in gas oil to give 212 g p-hydroxybenzoic acid monopotassium salt and 237 g p-hydroxybenzoic acid dipotassium salt, which was mixed with water, extracted with xylene, treated with H<sub>2</sub>SO<sub>4</sub>, and crystallized to give 256 g K<sub>2</sub>SO<sub>4</sub>.

IC ICS C07C051-50  
 CC ICS C07C065-03; C07C065-11  
 IT 25-17 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)  
 IT 13639-20-8P, p-Hydroxybenzoic acid dipotassium salt  
 IT 16782-08-4P, p-Hydroxybenzoic acid monopotassium salt  
 170013-59-9P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
 (recovery method of alkali metal salts in preparation of aromatic hydroxycarboxylic acids)  
 IT 92-70-6P, 2-Hydroxynaphthalene-3-carboxylic acid 99-96-7P,  
 p-Hydroxybenzoic acid, preparation 16712-64-4P, 2-Hydroxynaphthalene-6-carboxylic acid 160592-73-4P  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (recovery method of alkali metal salts in preparation of aromatic hydroxycarboxylic acids)

LI26 ANSWER 19 OF 85 HCAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 2002:56814 HCAPLUS Full-text  
 DOCUMENT NUMBER: 136:86844

TITLE: Injection molding of resins, system thereof, and injection molds

INVENTOR(S): Ueno, Ryuzo; Kitayama, Masaya;

Yonetani, Kichi

PATENT ASSIGNEE(S): Ueno Seiyaku Oyo Kenkyusho K. K., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 10 pp.

CODEN: JKXXAF

PATENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002018907	A	20020122	JP 2000-354200	20001121
TW 572820	B	20040121	TW 2001-90109621	20010423
SG 106607	A1	20041029	SG 2001-2573	20010430
			JP 2000-133631	A 20000502
			JP 2000-354200	A 20001121

AB Resins having melt viscosity (measured at T<sub>m</sub> + 25° and shear rate 1000 s<sup>-1</sup>) 5800 P are injection-molded with molds having runners with cross-sectional areas <2.0 mm<sup>2</sup>, sprues, and cavities. Thus, a thermotropic liquid crystalline polymer (p-hydroxybenzoic acid-2-hydroxy-6-naphthoic acid-terephthalic acid-hydroquinone copolymer containing 30% glass fibers; T<sub>m</sub> 325°, melt viscosity 350 P) was injection-molded with a mold having 8 cavities and runners (cross-sectional area 0.8 mm<sup>2</sup>) within molding cycle 8.5 s to give moldings with good appearance.

IC ICM B29C045-26

ICS B29C045-32; B29C045-76; B29K105-06

CC 38-2 (Plastics Fabrication and Uses)

IT 81843-52-9, p-Hydroxybenzoic acid-2-hydroxy-6-naphthoic acid

copolymer 90967-43-4; Hydroquinone-4-hydroxybenzoic

acid-2-hydroxy-6-naphthoic acid-terephthalic acid copolymer

RL: PE (Physical, engineering or chemical process); PVP (Physical

process); TEM (Technical or engineered material use); PROC (Process); USES

(Uses)

(molds and system for injection molding of resins in short molding cycles)

LI26 ANSWER 20 OF 85 HCAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 2002:767153 HCAPLUS Full-text  
 DOCUMENT NUMBER: 138:56732

TITLE: Dielectric constant/loss behaviour of 11.6 MeV/n U238 ion irradiated poly(p-hydroxy benzoic acid-co-ethylene terephthalate) liquid crystal polymer

AUTHOR(S): Sridharbabu, Y.; Prabhavathi, T.; Quamara, J. K.

CORPORATE SOURCE: Department of Applied Physics, Regional Engineering

College, Kurukshetra, 136 119, India

SOURCE: Indian Journal of Pure and Applied Physics (2002),

40(9), 633-636

CODEN: IJOPAU; ISSN: 0019-5596

PUBLISHER: National Institute of Science Communication

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Polyester liquid crystal, a copolymer of polyethylene terephthalate (PET) and polyhydroxy benzoic acid (PHB), of 165 µm nominal thickness was irradiated with 11.6 MeV/n U238 ions with fluence 1 + 106 ions/cm<sup>2</sup>. The dielec.

constant/loss values for the samples were measured in the temperature range

20-220°C by using a Keithley precision LCZ meter for frequencies 120 Hz, 1

kHz, 10 kHz, and 100 kHz. An increase in the dielec. constant at low

temperature (20-60°C) mainly ascribed to α-relaxation, depends upon the molar

concentration (0.3 or 0.7) of PHB. This peak has been attributed to the polar

nature of both PET and PHB. The α-relaxation is followed by suppression in

dielec. constant of PET/0.3PHB and sharp increase in dielec. constant of

PET/0.7PHB from which one can understand that, due to irradiation, the PET-

rich phase has been affected drastically. The decrease in the dielec.

constant at higher temps. is due to the increase in crystallinity as

annealing-like effects are also induced due to irradiation by energetic heavy

ions. The peak in the dielec. loss (0.3PHB) curve ascribed to the space

charge relaxation processes, which is in accordance with the thermally

stimulated polarization current behavior. A continuous decrease in the

dielec. loss curve (0.7PHB) ascribed to the m-transition that is in conformity

with the investigations on internal friction.

CC 37-5 (Plastics Manufacture and Processing)

IT 25022-54-2, Ethylene glycol-4-hydroxybenzoic acid-terephthalic

acid copolymer

RL: CPS (Chemical process); PEP (Physical, engineering or chemical

process); PRP (Properties); PROC (Process)

(liquid-crystalline; dielec. constant/loss behavior of 11.6 MeV/n U238 ion

irradiated)

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
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Anon	1996			Polyimides: Fundamen	
Blonski, S	1991	95	12890	J Chem Phys	HCAPIUS
Brostow, W	1988	178	1411	Kunststoffe	HCAPIUS
Brostow, W	1988	128	112	Polym Eng Sci	
Brostow, W	1992	11	187	Polym Eng Sci	
Brostow, W	1990	131	1979	Polymer	
Brostow, W	1992	133	14687	Polymer	HCAPIUS
Coburn, J	1986	119	12238	Macromolecules	HCAPIUS
Gedde Ulf, W	1987	120	1988	Macromolecules	

George, F 1988 126 183 J Polym Sci B: Polym  
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 Ober, C 1990 1435 11 J American Chemical Sy/HCAPIUS  
 Quamara, J 1996 134 1553 J Indian J Pure & Appl/HCAPIUS  
 Quamara, J 1998 136 1374 J Indian J Pure & Appl/HCAPIUS  
 Quamara, J 1997 112 148 J Vacuum

LI26 ANSWER 21 OF 85 HCAPIUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 2002:600133 HCAPIUS Full-text  
 DOCUMENT NUMBER: 138:107119

TITLE: Synthesis of side-chain liquid crystalline random styrene-maleic anhydride copolymers grafted by dimer and tetramer of p-hydroxybenzoic acid

AUTHOR(S): Liu, Hongchao; Guo, Zhaoying; Xie, Xiaolin  
 CORPORATE SOURCE: Department of Chemistry, Huazhong University of Science and Technology, Wuhan, 430074, Peop. Rep. China

SOURCE: Huazhong Keji Daxue Xuebao, Ziran Kexueban (2002), 30(5), 111-113  
 CODEN: HXDKAT; ISSN: 1671-4512

PUBLISHER: Huazhong Keji Daxue Xuebao Bianjibu

DOCUMENT TYPE: Journal  
 LANGUAGE: Chinese

AB Dimer (DHEA) and tetramer (THEA) of p-hydroxybenzoic acid (HBA) were synthesized and grafted onto the random styrene-maleic anhydride copolymer (RSMA) by condensation polymerization. At the same time, the CH<sub>2</sub> flexible spacers were introduced between the main chains and rigid side chains. The effects of side chain structure and flexible spacers on the liquid crystallinity of grafting polymers were discussed. It was found that the products obtained from RSMA or RSMA-g-HOCH<sub>2</sub>COOH reacted with DHEA and THEA were grafting copolymers, all showing nematic phases. The RSMA-g-DHEA and RS-g-THEA copolymers had only one glass transition, and their glass transition temps. were higher than that of RSMA. After the CH<sub>2</sub> flexible spacers were introduced between the main chains and rigid side chains of these copolymers, the RSMA-CH<sub>2</sub>-DHEA and RSMA-CH<sub>2</sub>-THEA grafting copolymers had two glass transitions due to the de-coupling effect of flexible spacers.

CC 35-8 (Chemistry of Synthetic High Polymers)

IT 227001-01-6P, Maleic anhydride-styrene-*p*-hydroxybenzoic acid graft copolymer

RL: PRP (Properties); SPN (Synthetic preparation); PRPP (Preparation)

(synthesis of side-chain liquid crystalline random styrene-maleic anhydride copolymers grafted by dimer and tetramer of p-hydroxybenzoic acid)

LI26 ANSWER 22 OF 85 HCAPIUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 2001:796321 HCAPIUS Full-text  
 DOCUMENT NUMBER: 135:345236

TITLE: Heat resistant liquid crystalline polyester resin with good colorability and mechanical properties

INVENTOR(S): Ueno, Ryuzo; Kitayama, Masaya;

Kometani, Kiichi; Kato, Hiroyuki; Ueda, Kazunori

PATENT ASSIGNEE(S): Kabushiki Kaisha Ueno Seiyaku Oyo Kenkyusho, Japan  
 SOURCE: PCT Int. Appl., 21 pp.  
 CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO. KIND DATE APPLICATION NO. DATE

WO 2001081449 A1 20011101 WO 2001-JP3242 20010416  
 W: CN, JP, KR, US  
 RW: AT, BE, CH, CT, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR

EP 1195398 A1 20020410 EP 2001-919953 20010416  
 EP 1195398 B1 20051012

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI

AT 306510 T 20051015 AT 2001-919953 20010416  
 TW 553974 B 20030921 TW 2001-90109307 20010418  
 US 6802989 B1 20041012 US 2001-9613 20011214  
 JP 2000-119762 A 20000420  
 WO 2001-JP3242 W 20010416

PRIORITY APPLN. INFO.:

AB Title resin contains 1-500 mmol repeating units derived from 4-hydroxyisophthalic acid and/or salicylic acid as a comonomer and contains an alkali metal compound 10-5000 ppm. Thus, a composition comprising 2-hydroxy-6-naphthoic acid-2-hydroxybenzoic acid-salicylic acid copolymer, potassium sulfate, and Carbon Black 45 was extruded to give a black pallet, showing Izod impact strength 418 J/m.

IC ICM C08G063-02

CC 37-6 (Plastics Manufacture and Processing)

IT Section cross-reference(s): 35, 75  
 370877-95-SP, 2-Hydroxy-6-naphthoic acid-4-Hydroxybenzoic acid-salicylic acid copolymer 370877-96-6P 370877-98-RDP, alkali metal salts 370877-99-9P 370878-00-SP

RL: IMF (Industrial manufacture); POF (Polymer in formulation); PRP (Preparation); TTM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(liquid crystalline; manufacture of heat resistant liquid crystalline polyester resin with good colorability and mech. properties)

RETABLE Referenced Author Year VOL PG Referenced Work Referenced (RAU) (RPY) (RVL) (RFG) (RWK) File

General Electric Compan 1 1 JP 05105744 A HCAPIUS  
 General Electric Compan 1 1 EP 498283 A HCAPIUS  
 General Electric Compan 1993 1 1 US 5198572 A HCAPIUS

LI26 ANSWER 23 OF 85 HCAPIUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 2001:109992 HCAPIUS Full-text  
 DOCUMENT NUMBER: 134:132921

TITLE: Color controlling agents, coupling agents containing them, and azo dyes therefrom

INVENTOR(S): Ueno, Ryuzo; Kitayama, Masaya; Izumichi, Nobetaka; Kato, Hiroyuki; Kittaka, Shoji

PATENT ASSIGNEE(S): Ueno Seiyaku Oyo Kenkyusho K.K., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 4 pp.  
 CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

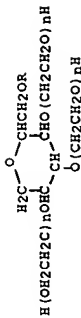
PATENT INFORMATION:

PATENT NO. KIND DATE APPLICATION NO. DATE

JP 2001040236 A 20010213 JP 1999-212085 19990727  
 PRIORITY APPLN. INFO.:

OTHER SOURCE(S):  
GI

MARPAT 134:132921



I

AB The color controlling agents are polyoxyethylene sorbitan fatty acid monoesters I [R = (un)saturated linear or branched aliphatic acyl group; n ≥ 1]. Thus, 2-hydroxy-3-naphthalenecarboxylic acid was azo-coupled with diazotized 4-aminotoluene-3-sulfonic acid in the presence of polyoxyethylene sorbitan monooleate (I; R = oleyl, n = 20) to give an azo dye with bluish red.

IC ICM C095067-20

ICS C095029-20

CC 41-3 (Dyes, Organic Pigments, Fluorescent Brighteners, and Photographic Sensitizers)

L126 ANSWER 24 OF 85 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2001:629045 HCAPLUS Full-text

DOCUMENT NUMBER: 135:372392

TITLE: Thermal behavior of poly(acryloyloxybenzoic acid)/nylon 6 blends

AUTHOR(S): Sessa Salmath, A. V.; Inoue, T.; Yonetake, K.; Koyama, K.

CORPORATE SOURCE: Venture Business Laboratory of Yamagata University,

Yonezawa, 992-8510, Japan

SOURCE: Polymer (2001), 42(24), 9859-9862

CODEN: POLMAG; ISSN: 0032-3861

PUBLISHER: Elsevier Science Ltd.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The thermal behavior of poly(acryloyloxybenzoic acid) (PABA)/nylon 6 (PA6) blends were investigated by differential scanning calorimetry. M.p. (T<sub>m</sub>) of PA6 depressed with increasing PABA content. When PABA content was larger than about 60 wt%, second endotherm was observed above the T<sub>m</sub> (first endotherm). Wide angle X-ray diffraction anal. suggested that crystallinity of PA6 was decreased with increasing PABA content. The second endotherm could be assigned to the melting of PA6-PABA complex.

CC 37-5 (Plastics Manufacture and Processing)

IT Glass transition temperature

Melting point

(of poly(acryloyloxybenzoic acid)/nylon 6 blends)

IT 99-96-7, 4-Hydroxybenzoic acid, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)

(reaction with acryloyl chloride)

RETABLE Referenced Author Year VOL PG Referenced Work Referenced

(RAU) (RPY) (RVL) (RPG) (RWK) File

Bank, M 1972 10 11097 J Polym Sci Polym Ch HCAPLUS

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Rodriguez-Parada, J 1986 124 1579 J Polym Sci Polym Ch HCAPLUS

Ting, S 1981 119 1451 J Polym Sci Polym Ch HCAPLUS

Ting, S 1980 118 1201 J Polym Sci Polym Le HCAPLUS

L126 ANSWER 25 OF 85 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2001:378869 HCAPLUS Full-text

DOCUMENT NUMBER: 135:123289

TITLE: Specific interactions in 4-hydroxybenzoic acid/poly(2-vinylpyridine)/poly(N-vinyl-2-pyrrolidone) blends

AUTHOR(S): Li, Xue-Dong; Goh, S. H.

CORPORATE SOURCE: Department of Chemistry, National University of Singapore, Singapore, 117543, Singapore

SOURCE: Journal of Applied Polymer Science (2001), 81(4),

901-907

CODEN: JAPNAB; ISSN: 0021-8995

PUBLISHER: John Wiley & Sons, Inc.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The specific interactions in ternary 4-hydroxybenzoic acid (HBA)/poly(2-vinylpyridine) (P2VP)/poly(N-vinyl-2-pyrrolidone) (PVP) blends were studied by DSC, FTIR spectroscopy, and electron microscopy. FTIR study shows the existence of H-bonding interactions between HBA and P2VP as well as PVP. The addition of a sufficiently large amount of HBA produces a blend showing a single glass-transition temp. (T<sub>g</sub>). Microscopic study shows a drastic reduction in domain size in single-T<sub>g</sub> blends.

CC 37-6 (Plastics Manufacture and Processing)

IT Glass transition temperature

(hydroxybenzoic acid effect on poly(2-vinylpyridine)/poly(N-vinyl-2-pyrrolidone) blend)

IT 99-96-7, 4-Hydroxybenzoic acid, properties 9003-39-8,

Poly(N-vinyl-2-pyrrolidone) 25014-15-7, Poly(2-vinylpyridine)

RL: PRP (Properties)

(H-bonding interactions in 4-hydroxybenzoic acid/poly(2-vinylpyridine)/poly(N-vinyl-2-pyrrolidone) blends)

RETABLE

Referenced Author Year VOL PG Referenced Work Referenced

(RAU) (RPY) (RVL) (RPG) (RWK) File

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Li, X 2000 41 16563 Polymer HCAPLUS

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 Matuzewska-Czarwik, J 1586 119 1149 Polym Bull HCAPLUS  
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 Ruokolainen, J 1598 131 13532 Macromolecules HCAPLUS  
 Ruokolainen, J 1598 1280 1557 Science HCAPLUS  
 Smid, J 1586 127 1148 Polym Commun HCAPLUS  
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 Tsuchida, E 1980 1817 1683 J Macromol Sci Phys HCAPLUS  
 Wang, L 1991 129 1619 J Polym Sci Part B HCAPLUS  
 Yan, H 1999 174 197 J Appl Polym Sci HCAPLUS  
 Zhou, H 1597 1198 1809 Macromol Chem Phys HCAPLUS  
 Zhou, X 1597 160 1119 Appl Surf Sci HCAPLUS  
 Zhou, X 1998 139 13631 Polymer HCAPLUS  
 Zhu, L 1998 1837 1805 J Macromol Sci Phys HCAPLUS  
 Zhu, L 1998 1837 1827 J Macromol Sci Phys HCAPLUS

L126 ANSWER 26 OF 85 HCAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 2000-814540 HCAPLUS Full-text  
 DOCUMENT NUMBER: 133:36341  
 TITLE: Liquid-crystalline polymers for moldings having weld strength

INVENTOR(S): Ueno, Ryuzo; Kitayama, Masaya;  
 Kometani, Kiyohi; Hamasaki, Taihei; Asahara, Motoki  
 PATENT ASSIGNEE(S): Kabushiki Kaisha Ueno Seiyaku Oyo Kenkyujo, Japan  
 SOURCE: PCT Int. Appl., 30 pp.  
 CODEN: PIXXD2

DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000068291	A1	20001116	WO 2000-JP2860	20000501
W: CA, CN, JP, KR, US				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
CA 2336892	A1	20001116	CA 2000-2336892	20000501
EP 1103573	A1	20010530	EP 2000-922922	20000501
EP 1103573	B1	20040915		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				
AT 276304	T	20041015	AT 2000-922922	20000501
TW 593410	B	20040621	TW 2000-89108491	20000504
US 6386045	B1	20020514	US 2001-743198	20010108
PRIORITY APPLN. INFO.:			JP 1999-127328	A 19990507
			WO 2000-JP2860	W 20000501

AB Polyesters comprise a monomer of naphthalenepolycarboxylic acid derivs. such as 1,4-bis(2'-hydroxy-6'-hydroxycarbonylnaphtho-3'-ylcarbonylamino)phenylene (I) and 2,2'-hexylenedioxy-bis(3,6-dihydroxycarbonylnaphthalene). Thus, a polyester was prepared from p-hydroxybenzoic acid 655, 5-hydroxy-2-naphthoic acid 318, and I 17 parts and injection-molded to prepare a test piece having weld tensile strength 864 kg/cm<sup>2</sup>, compared with 124 for a polyester containing no I.

IC ICM C08G063-13  
 CCS C08G063-668; C08G069-44; C08J005-00  
 CC 38-3 (Plastics Fabrication and Uses)  
 Section cross-reference(s): 25, 35, 75

IT 307002-47-7P 307002-48-8P 307002-49-9P  
 307002-50-2P 307002-51-3P

RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (liquid-crystalline polymers for moldings having weld strength)  
 IT 71-41-0, Aryl alcohol, reactions 92-88-6, [1,1'-Biphenyl]-4,4'-diol  
 106-50-3, p-Phenylenediamine, reactions 108-24-7, Acetic anhydride 629-03-8 2425-95-8 7719-09-7, Thionyl chloride 160592-73-4 183962-76-7 213673-77-9

RL: RCT (Reactant); RACT (Reactant or reagent)  
 (liquid-crystalline polymers for moldings having weld strength)

Referenced Author	Year	VOL	PG	Referenced Work	Referenced File
Bayer Aktiengesellschaft				JP 6466231 A	
Bayer Aktiengesellschaft	1989			IUS 4866154 A	HCAPIUS
Bayer Aktiengesellschaft	1989			IUS 4866154 A	HCAPIUS
Kuraray Co Ltd	1991			JP 03200830 A	HCAPIUS

L126 ANSWER 27 OF 85 HCAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 2000-814442 HCAPLUS Full-text  
 DOCUMENT NUMBER: 133:357544  
 TITLE: Preparation of crystal of 2-hydroxynaphthalene-3-carboxylic acid

INVENTOR(S): Ueno, Ryuzo; Kitayama, Masaya;  
 Isumichi, Nobutaka; Kato, Hiroyuki  
 PATENT ASSIGNEE(S): Kabushiki Kaisha Ueno Seiyaku Oyo Kenkyujo, Japan  
 SOURCE: PCT Int. Appl., 18 pp.  
 CODEN: PIXXD2

DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000068177	A1	20001116	WO 2000-JP2862	20000501
W: CA, CN, JP, KR, US				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
CA 2336671	A1	20001116	CA 2000-2336671	20000501
EP 1095929	A1	20010502	EP 2000-922924	20000501
EP 1095929	B1	20040908		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				
AT 275537	T	20040915	AT 2000-922924	20000501
ES 2230095	T3	20050501	ES 2000-922924	20000501
JP 3664653	B2	20050629	JP 2000-617138	20000501
US 6403827	B1	20020611	US 2001-720194	20010103
PRIORITY APPLN. INFO.:			JP 1999-127158	A 19990507
			WO 2000-JP2862	W 20000501

AB Claimed is a crystal of 2-hydroxynaphthalene-3-carboxylic acid (BON), characterized in that the mean particle diameter is 157 μm or above and the content of particles having diams. of 74 μm or below is 14 % or below. This crystal can be prepared by (a) recrystg. BON at hgh temperature or (b) reacting (at high temperature) BON alkali metal salt with acid and recrystg. the resulting BON at high temperature

IC ICM C07C065-11  
 CCS C07C051-43





Anon 11997 1259 Handbook of Liquid C HCAPLUS  
 Bhoomik, P 11995 133 J Polym Sci, Polym C HCAPLUS  
 Cameron, J 11997 19 Adv Mater HCAPLUS  
 Hessel, V 11993 114 Makromol Chem, Rapid HCAPLUS  
 Marle, C 11995 13 Trends Polym Sci HCAPLUS  
 Navarro-Rodriguez, D 11992 1193 Makromol Chem HCAPLUS  
 Ujile, S 11990 1 Chem Commun in Press HCAPLUS  
 Ujile, S 11994 117 Chem Lett HCAPLUS  
 Ujile, S 11998 110 High Perform Polym HCAPLUS  
 Ujile, S 11999 156 Kobunshi Ronbunshu HCAPLUS  
 Ujile, S 11992 125 Makromol Chem HCAPLUS  
 Ujile, S 11993 1231 Mol Cryst Liq Cryst HCAPLUS  
 Ujile, S 11993 125 Polym J HCAPLUS  
 Ujile, S 11991 134 Rep Prog Polym Phys HCAPLUS  
 L126 ANSWER 30 OF 85 HCAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 2000:738000 HCAPLUS Full-text  
 DOCUMENT NUMBER: 134:18049  
 TITLE: Thermal properties of blends of a thermotropic liquid crystalline copolyester of poly(hydroxy benzoic acid-co-ethylene terephthalate) and polyarylate  
 AUTHOR(S): Han, Minsoo; Park, Junghoon; Cheen, Sun Woo; Kim, Sung Hyun; Kim, Woo Nyon  
 CORPORATE SOURCE: Department of Chemical Engineering, Center for Advanced Functional Polymers, Korea University, Seoul, 136-701, S. Korea  
 SOURCE: Polymer Bulletin (Berlin) (2000), 45(2), 151-158  
 CODEN: POBUDR; ISSN: 0170-0839  
 PUBLISHER: Springer-Verlag  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 AB Thermal properties and transesterification reaction of blends of Ardel D-100 polyarylate (PAR) and Rodrun 5000 thermotropic liquid crystalline polymer (LCP) were investigated by differential scanning calorimetry (DSC) and Fourier-transform IR (FTIR) spectroscopy. In the thermogram of PAR-LCP blends, two glass transition temps. (Tgs) were observed. The phase behavior of the blends revealed that the LCP dissolved more in the PAR-rich phase than did the PAR in the LCP-rich phase, indicating partial miscibility between the two polymers. The polymer-polymer interaction parameter ( $\chi_{12}$ ) was calculated, and ranged from 0.069 to 0.076. In the calcn. of the  $\chi_{12}$ , the anisotropy of the LCP was considered. After annealing, the two Tgs of the blends were shifted toward the center. In the FTIR spectroscopy study of the annealed PAR-LCP blends, three new characteristic peaks of the ester group were detected. The DSC and FTIR results suggested that the transesterification reaction between PAR and LCP occurred under the annealed condition.  
 OC 37-5 (Plastics Manufacture and Processing)  
 IT Polymer blends  
 RL: PRP (Properties)  
 blends of (aromatic polyester-liquid crystalline polyester; thermal properties of thermotropic liquid crystalline copolyester of poly(hydroxy benzoic acid-co-ethylene terephthalate) and Ardel D-100 polyarylate)  
 IT Polyesters, properties  
 RL: POE (Polymer in formulation); PRP (Properties); USES (Uses)  
 blends of (aromatic, liquid crystal polyester blends; thermal properties of blends of thermotropic liquid crystalline copolyester of poly(hydroxy benzoic acid-co-ethylene terephthalate) and Ardel D-100 polyarylate)

IT Transesterification  
 polyarylate)  
 blends of thermotropic liquid crystalline copolyester of poly(hydroxy benzoic acid-co-ethylene terephthalate) and Ardel D-100 polyarylate)  
 IT Polyesters, properties  
 RL: POE (Polymer in formulation); PRP (Properties); USES (Uses)  
 blends of (liquid-crystalline, aromatic polyester blends; thermal properties of thermotropic liquid crystalline copolyester of poly(hydroxy benzoic acid-co-ethylene terephthalate) and Ardel D-100 polyarylate)  
 IT Liquid crystals, polymeric  
 (polyesters, aromatic polyester blends; thermal properties of blends of thermotropic liquid crystalline copolyester of poly(hydroxy benzoic acid-co-ethylene terephthalate) and Ardel D-100 polyarylate)  
 IT Glass transition temperature  
 Polymer interaction parameter  
 (thermal properties of blends of thermotropic liquid crystalline copolyester of poly(hydroxy benzoic acid-co-ethylene terephthalate) and Ardel D-100 polyarylate)  
 IT 25822-54-2, Ethylene glycol-p-hydroxybenzoic acid-terephthalic acid copolymer  
 RL: POE (Polymer in formulation); PRP (Properties); USES (Uses)  
 properties (liquid crystalline, Rodrun 5000, aromatic polyester blends; thermal properties of blends of thermotropic liquid crystalline copolyester of poly(hydroxy benzoic acid-co-ethylene terephthalate) and Ardel D-100 polyarylate)  
 IT 25639-68-3, Ardel D-100  
 RL: POE (Polymer in formulation); PRP (Properties); USES (Uses)  
 properties (liquid crystal polyester blends; thermal properties of blends of thermotropic liquid crystalline copolyester of poly(hydroxy benzoic acid-co-ethylene terephthalate) and Ardel D-100 polyarylate)

RETABLE

Referenced Author	Year	VOL	PG	Referenced Work	Referenced
(RAU)	(RPT)	(RVL)	(RPG)	(RWR)	File
Ahn, T	1993	134	14156	Polymer	HCAPLUS
Blizard, K	1987	127	1653	Polym Eng Sci	HCAPLUS
Carpaneto, L	1999	140	1781	Polymer	HCAPLUS
Dreezen, G	1999	140	16451	Polymer	HCAPLUS
Ellis, T	1998	139	14741	Polymer	HCAPLUS
Flory, P	1978	111	11141	Macromolecules	HCAPLUS
Flory, P	1979	154	1311	Mol Cryst Liq Cryst	HCAPLUS
Fox, T	1956	11	123	Bull Am Phys Soc	HCAPLUS
Frich, D	1998	1199	1913	Macromol Chem Phys	HCAPLUS
Friedrich, K	1988	116	1251	Macromol Chem, Makro	HCAPLUS
Golovoy, A	1989	129	185	Polym Eng Sci	HCAPLUS
He, J	1999	140	1959	Polymer	HCAPLUS
Hong, S	1993	133	1630	Polym Eng Sci	HCAPLUS
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Jung, H	1998	141	1387	Polym Bull	HCAPLUS
Kim, W	1987	134	1945	J Appl Polym Sci	HCAPLUS
Kim, W	1989	128	1409	J Polym Sci, Polym P	HCAPLUS
Kim, W	1992	136	11477	J Rheol	HCAPLUS
Kim, W	1987	120	11876	Macromolecules	HCAPLUS
Kiss, G	1987	127	1410	Polym Eng Sci	HCAPLUS

Kotliar, A 11981 116 1367 J Polym Sci, Macromol HCAPLUS  
 Lee, H 11999 143 1583 J Rheol HCAPLUS  
 Lee, H 11996 137 1503 Polym Bull HCAPLUS  
 Lee, H 11996 120 1813 Polymer(Korea) HCAPLUS  
 Miley, D 11992 133 1463 J Polym Sci HCAPLUS  
 Mondragon, I 11986 132 16191 J Appl Polym Sci HCAPLUS  
 Muhlebach, A 11990 123 1803 Macromolecules HCAPLUS  
 Oh, T 11997 137 1838 Polym Eng Sci HCAPLUS  
 Porter, R 11989 129 155 Polym Eng Sci HCAPLUS  
 Porter, R 11992 133 12019 Polymer HCAPLUS  
 Tang, P 11993 126 14269 Macromolecules HCAPLUS  
 Wei, K 11997 130 11587 Macromolecules HCAPLUS  
 Weiss, R 12000 141 13471 Polymer HCAPLUS

L126 ANSWER 31 OF 85 HCAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 2001:14056 HCAPLUS Full-text  
 DOCUMENT NUMBER: 134:367553  
 TITLE: Synthesis and characterization of liquid crystalline polymers of styrene-maleic anhydride copolymer grafted by poly(p-hydroxybenzoic acid)  
 AUTHOR(S): Zhou, Yan; Tong, Shenyi; Xie, Xiaolin  
 CORPORATE SOURCE: Department of Chemical Engineering, Wuhan Institute of Chemical Technology, 430073, Peop. Rep. China  
 SOURCE: Hecheng Shuzhi Ji Suliao (2000), 17(6), 34-36  
 CODEN: HSSUEJ; ISSN: 1002-1396

PUBLISHER: Hecheng Shuzhi Ji Suliao Bianjibu  
 DOCUMENT TYPE: Journal  
 LANGUAGE: Chinese

AB The liquid crystalline copolymers of styrene-maleic anhydride grafted by *p*-hydroxybenzoic acid (HBA) were synthesized through condensation polymerization in pyridine solvent at mild temperature. The copolymers were characterized by means of Fourier transform IR spectrometry and differential scanning calorimetry (DSC). The glass transition temperature rose because of the introduction of liquid crystalline side chains.

CC 37-3 (Plastics Manufacture and Processing)  
 Section cross-reference(s): 35  
 IT Glass transition temperature

Liquid crystals, polymeric  
 styrene-maleic anhydride copolymer grafted by poly(p-hydroxybenzoic acid))

IT 227001-01-6P, *p*-Hydroxybenzoic acid-maleic anhydride-styrene graft copolymer  
 RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)

(liquid crystalline; synthesis and characterization of liquid crystalline polymers of styrene-maleic anhydride copolymer grafted by poly(p-hydroxybenzoic acid))

L126 ANSWER 32 OF 85 HCAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 2000:677908 HCAPLUS Full-text  
 DOCUMENT NUMBER: 134:178894

TITLE: Synthesis of liquid crystalline polymers of SMA copolymer grafted by *p*-hydroxybenzoic acid dimer and tetramer

AUTHOR(S): Zhou, Yan; Tong, Shenyi; Xie, Xiaolin  
 CORPORATE SOURCE: Department of Chemical Engineering, Wuhan Institute of Chemical Technology, 430073, Peop. Rep. China  
 SOURCE: Wuhan Huangong Xueyuan Xuebao (2000), 22(2), 18-22

CODEN: WAXUEY; ISSN: 1004-4736  
 PUBLISHER: Wuhan Huangong Xueyuan Xuebao Bianjibu  
 DOCUMENT TYPE: Journal  
 LANGUAGE: Chinese

AB Dimer and tetramer of *p*-hydroxy benzoic acid (HBA) were synthesized and grafted to styrenemaleic anhydride copolymer (SMA) to produce side chain liquid crystalline polymers (LCP). FT-IR, DSC and POM were used to characterize LCP. Glass-transition temperature of LCP raised because of the induction of liquid crystalline unit on SMA main chain.

CC 35-5 (Chemistry of Synthetic High Polymers)  
 Section cross-reference(s): 37, 75  
 IT Glass transition temperature

IR spectra  
 Polymer morphology  
 (synthesis, morphol., glass temperature, and IR spectra of liquid crystalline polyester grafted with styrene-maleic anhydride copolymer)

IT 227001-01-6P, *p*-Hydroxybenzoic acid -styrene-maleic anhydride graft copolymer  
 RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)

(side-chain liquid crystals; synthesis, morphol., glass temperature, and IR spectra of liquid crystalline polyester grafted with styrene-maleic anhydride copolymer)

L126 ANSWER 33 OF 85 HCAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 2000:632854 HCAPLUS Full-text  
 DOCUMENT NUMBER: 134:131893

TITLE: Synthesis and liquid crystalline properties of PET/PBH copolymers

AUTHOR(S): Shan, Guorong; Wang, Zhixue; Huang, Zhiming; Chen, Xueping; Pan, Zuren

CORPORATE SOURCE: Institute of Polymer Science and Engineering, Department of Chemical Engineering, Zhejiang University, Hangzhou, 310027, Peop. Rep. China  
 Hecheng Shuzhi Ji Suliao (2000), 17(3), 13-16  
 CODEN: HSSUEJ; ISSN: 1002-1396

SOURCE: Hecheng Shuzhi Ji Suliao Bianjibu

PUBLISHER: Journal

DOCUMENT TYPE: Chinese

AB *p*-hydroxybenzoic acid (PHB) unit was introduced into the polyethylene terephthalate chain in order to form liquid crystalline segment. It was confirmed that one-step process was superior to two-step process. The effects of polycondensation temperature, reaction time, concentration of catalyst, content of PHB on the inherent viscosity of PET/PBH copolymers were studied in the one-step process. The liquid crystalline properties of the PET/PBH copolymers were characterized by means of polarized light microscope and differential scanning calorimeter.

CC 35-5 (Chemistry of Synthetic High Polymers)  
 Section cross-reference(s): 75

ST PET para hydroxy benzoic acid copolymer liq crystal; polyethylene terephthalate hydroxy benzoic acid copolymer liq crystal; antimony oxide transesterification catalyst

IT Polymers, preparation

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)

(copolymers; synthesis and liquid crystalline properties of PET/PBH copolymers)

IT Liquid crystals, polymeric

(ethylene glycol-*p*-hydroxybenzoic acid-terephthalic acid copolymer; synthesis and liquid crystalline properties of PET/PBH copolymers)

IT Phase transition temperature  
Transesterification catalysts  
Viscosity

IT 25822-54-2P, Ethylene glycol-p-hydroxybenzoic acid-terephthalic acid copolymer

RI: PRP (Properties); SPN (Synthetic preparation); PREP

(Preparation)  
(synthesis and liquid crystalline properties of PET/PBH copolyesters)

L126 ANSWER 34 OF 85 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1999-460470 HCAPLUS Full-text

DOCUMENT NUMBER: 131:89074

TITLE: Water-soluble azo compounds and process for their preparation

INVENTOR(S): Ueno, Ryuzo; Kitayama, Masaya;

Minami, Kenji; Kittaka, Masaharu

PATENT ASSIGNEE(S): Kabushiki Kaisha Ueno Seiyaku Oyo Kenkyujo, Japan

SOURCE: PCT Int. Appl., 34 PP.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION: 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9933925	A1	19990708	WO 1998-JP5755	19981221

W: CA, CN, JP, KR, US  
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE

TW 527402 B 20030411 TW 1998-87121274 19981219

CA 2282594 A1 19990708 CA 1998-2282594 19981221

EP 984042 A1 20000308 EP 1998-961428 19981221

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI

CN 1098319 B 20030108 CN 1998-803539 19981221

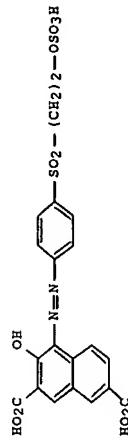
US 6239263 B1 20010529 US 1999-380207 19990826

PRIORITY APPL. INFO.: JP 1997-359396 A 19971226

WO 1998-JP5755 W 19981221

OTHER SOURCE(S): MARPAT 131:89074

GI



AB Azo comds. useful as raw materials for preparing dyes with good dyeing properties and fastness are prepared from a coupler consisting of 2-hydroxynaphthalene-3,6-dicarboxylic acid, its ester or amide and a diazonium compound bearing -B-(CH2)2-Q or -B'-(CH2)2-Q' group (wherein B and B' are each an electron-attracting group; and Q and Q' are each a group capable of forming a vinyl group through the elimination with an alkali, provided the groups Q and Q' are each bonded at the  $\beta$ -position of the CH2CH2 group). Thus, coupling diazotized 4-( $\beta$ -sulfoethoxysulfonyl)aniline with 2-hydroxynaphthalene-3,6-dicarboxylic acid in the presence of 10% NaHCO3 at pH 4-6 gave a red powdered crystal I.

IC ICM C09B062-51

CC 41-3 (Dyes, Organic Pigments, Fluorescent Brighteners, and Photographic Sensitizers)

Section cross-reference(s): 40

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Aziende Colori Nazionali	1981			EP 33527 A2	HCAPLUS
Aziende Colori Nazionali	1981			JP 56120770 A	HCAPLUS
Hoechst Ag				EP 292955 A2	HCAPLUS
Hoechst Ag				DE 3718180 A1	HCAPLUS
Hoechst Ag				US 5093483 A	HCAPLUS
Hoechst Ag	1988			JP 63309559 A	HCAPLUS
R-Tech Unoltd				EP 881267 A1	HCAPLUS
R-Tech Unoltd	1998			WO 9816587 A1	HCAPLUS

L126 ANSWER 35 OF 85 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1999-189145 HCAPLUS Full-text

DOCUMENT NUMBER: 130:197883

TITLE: Water-soluble azo compounds and production process therefor

INVENTOR(S): Ueno, Ryuzo; Kitayama, Masaya;

Minami, Kenji; Kittaka, Masaharu

PATENT ASSIGNEE(S): Kabushiki Kaisha Ueno Seiyaku Oyo Kenkyujo, Japan

SOURCE: PCT Int. Appl., 45 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9911717	A1	19990311	WO 1998-JP3750	19980825

W: CA, CN, JP, KR, US

RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE

CA 2266258 A1 19990311 CA 1998-2266258 19980825

EP 937753 A1 19990825 EP 1998-938963 19980825

EP 937753 B1 20030806

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI

CN 1098318 B 20030108 CN 1998-801222 19980825

AT 246715 T 20030815 AT 1998-938963 19980825

TW 222989 B 20041101 TW 1998-87114143 19980827

US 6020470 A 20000201 US 1999-254949 19950322

PRIORITY APPL. INFO.: JP 1997-232887 A 19970828

WO 1998-JP3750 W 19980825

OTHER SOURCE(S): NAREPAT 130:197883

AB New water-soluble azo compds. used as starting materials for dyes with excellent dyeing properties and fastness were produced from 2-hydroxynaphthalene-3,6-dicarboxylic acid or its derivs. and a diazonium salt having a sulfo group. Thus, an azo compound was prepared by reaction of sulfanilic acid with cyanuric chloride, followed by reaction of the product with m-phenylenediamine-4-sulfonic acid, then diazotization with 2-hydroxy-3-phenylaminocarbonyl-6-hydroxycarbonylnaphthalene to give NaCl-containing dark red crystal powder 90.3 g, showing good dyeing property with cotton fiber.

IC ICM C09B062-085

CC ICS C09B062-245; C09B029-15; C09B029-20

41-3 (Dyes, Organic Pigments, Fluorescent Brighteners, and Photographic Sensitizers)

Section cross-reference(s): 40

Referenced Author (RAU)	Year (RKY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Anon				EP 316722 A1	HCAPLUS
Anon				EP 324373 A1	HCAPLUS
Anon				DE 3738831 A1	HCAPLUS
Anon				DE 3800692 A1	HCAPLUS
Hoechst AG	1989			JP 01-215862 A	HCAPLUS
Hoechst AG	1989			JP 01-245060 A	HCAPLUS
Mitsubishi Kasei Corp	1994			JP 06-145573 A	HCAPLUS
R-Tech Ueno, Ltd	1998			WO 98/16587 A1	HCAPLUS
R-Tech Ueno, Ltd	1998			WO 98/17728 A1	HCAPLUS

RETABLE

Referenced Author (RAU)	Year (RKY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Anon				EP 316722 A1	HCAPLUS
Anon				EP 324373 A1	HCAPLUS
Anon				DE 3738831 A1	HCAPLUS
Anon				DE 3800692 A1	HCAPLUS
Hoechst AG	1989			JP 01-215862 A	HCAPLUS
Hoechst AG	1989			JP 01-245060 A	HCAPLUS
Mitsubishi Kasei Corp	1994			JP 06-145573 A	HCAPLUS
R-Tech Ueno, Ltd	1998			WO 98/16587 A1	HCAPLUS
R-Tech Ueno, Ltd	1998			WO 98/17728 A1	HCAPLUS

Referenced Author (RAU)	Year (RKY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Anon				EP 316722 A1	HCAPLUS
Anon				EP 324373 A1	HCAPLUS
Anon				DE 3738831 A1	HCAPLUS
Anon				DE 3800692 A1	HCAPLUS
Hoechst AG	1989			JP 01-215862 A	HCAPLUS
Hoechst AG	1989			JP 01-245060 A	HCAPLUS
Mitsubishi Kasei Corp	1994			JP 06-145573 A	HCAPLUS
R-Tech Ueno, Ltd	1998			WO 98/16587 A1	HCAPLUS
R-Tech Ueno, Ltd	1998			WO 98/17728 A1	HCAPLUS

Referenced Author (RAU)	Year (RKY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Anon				EP 316722 A1	HCAPLUS
Anon				EP 324373 A1	HCAPLUS
Anon				DE 3738831 A1	HCAPLUS
Anon				DE 3800692 A1	HCAPLUS
Hoechst AG	1989			JP 01-215862 A	HCAPLUS
Hoechst AG	1989			JP 01-245060 A	HCAPLUS
Mitsubishi Kasei Corp	1994			JP 06-145573 A	HCAPLUS
R-Tech Ueno, Ltd	1998			WO 98/16587 A1	HCAPLUS
R-Tech Ueno, Ltd	1998			WO 98/17728 A1	HCAPLUS

Referenced Author (RAU)	Year (RKY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Anon				EP 316722 A1	HCAPLUS
Anon				EP 324373 A1	HCAPLUS
Anon				DE 3738831 A1	HCAPLUS
Anon				DE 3800692 A1	HCAPLUS
Hoechst AG	1989			JP 01-215862 A	HCAPLUS
Hoechst AG	1989			JP 01-245060 A	HCAPLUS
Mitsubishi Kasei Corp	1994			JP 06-145573 A	HCAPLUS
R-Tech Ueno, Ltd	1998			WO 98/16587 A1	HCAPLUS
R-Tech Ueno, Ltd	1998			WO 98/17728 A1	HCAPLUS

Referenced Author (RAU)	Year (RKY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Anon				EP 316722 A1	HCAPLUS
Anon				EP 324373 A1	HCAPLUS
Anon				DE 3738831 A1	HCAPLUS
Anon				DE 3800692 A1	HCAPLUS
Hoechst AG	1989			JP 01-215862 A	HCAPLUS
Hoechst AG	1989			JP 01-245060 A	HCAPLUS
Mitsubishi Kasei Corp	1994			JP 06-145573 A	HCAPLUS
R-Tech Ueno, Ltd	1998			WO 98/16587 A1	HCAPLUS
R-Tech Ueno, Ltd	1998			WO 98/17728 A1	HCAPLUS

Referenced Author (RAU)	Year (RKY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Anon				EP 316722 A1	HCAPLUS
Anon				EP 324373 A1	HCAPLUS
Anon				DE 3738831 A1	HCAPLUS
Anon				DE 3800692 A1	HCAPLUS
Hoechst AG	1989			JP 01-215862 A	HCAPLUS
Hoechst AG	1989			JP 01-245060 A	HCAPLUS
Mitsubishi Kasei Corp	1994			JP 06-145573 A	HCAPLUS
R-Tech Ueno, Ltd	1998			WO 98/16587 A1	HCAPLUS
R-Tech Ueno, Ltd	1998			WO 98/17728 A1	HCAPLUS

Referenced Author (RAU)	Year (RKY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Anon				EP 316722 A1	HCAPLUS
Anon				EP 324373 A1	HCAPLUS
Anon				DE 3738831 A1	HCAPLUS
Anon				DE 3800692 A1	HCAPLUS
Hoechst AG	1989			JP 01-215862 A	HCAPLUS
Hoechst AG	1989			JP 01-245060 A	HCAPLUS
Mitsubishi Kasei Corp	1994			JP 06-145573 A	HCAPLUS
R-Tech Ueno, Ltd	1998			WO 98/16587 A1	HCAPLUS
R-Tech Ueno, Ltd	1998			WO 98/17728 A1	HCAPLUS

Referenced Author (RAU)	Year (RKY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Anon				EP 316722 A1	HCAPLUS
Anon				EP 324373 A1	HCAPLUS
Anon				DE 3738831 A1	HCAPLUS
Anon				DE 3800692 A1	HCAPLUS
Hoechst AG	1989			JP 01-215862 A	HCAPLUS
Hoechst AG	1989			JP 01-245060 A	HCAPLUS
Mitsubishi Kasei Corp	1994			JP 06-145573 A	HCAPLUS
R-Tech Ueno, Ltd	1998			WO 98/16587 A1	HCAPLUS
R-Tech Ueno, Ltd	1998			WO 98/17728 A1	HCAPLUS

Referenced Author (RAU)	Year (RKY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
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Anon				EP 324373 A1	HCAPLUS
Anon				DE 3738831 A1	HCAPLUS
Anon				DE 3800692 A1	HCAPLUS
Hoechst AG	1989			JP 01-215862 A	HCAPLUS
Hoechst AG	1989			JP 01-245060 A	HCAPLUS
Mitsubishi Kasei Corp	1994			JP 06-145573 A	HCAPLUS
R-Tech Ueno, Ltd	1998			WO 98/16587 A1	HCAPLUS
R-Tech Ueno, Ltd	1998			WO 98/17728 A1	HCAPLUS

Referenced Author (RAU)	Year (RKY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
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Anon				EP 324373 A1	HCAPLUS
Anon				DE 3738831 A1	HCAPLUS
Anon				DE 3800692 A1	HCAPLUS
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Hoechst AG	1989			JP 01-245060 A	HCAPLUS
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R-Tech Ueno, Ltd	1998			WO 98/16587 A1	HCAPLUS
R-Tech Ueno, Ltd	1998			WO 98/17728 A1	HCAPLUS

Referenced Author (RAU)	Year (RKY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
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Anon				EP 324373 A1	HCAPLUS
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Hoechst AG	1989			JP 01-245060 A	HCAPLUS
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R-Tech Ueno, Ltd	1998			WO 98/17728 A1	HCAPLUS

Referenced Author (RAU)	Year (RKY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
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Hoechst AG	1989			JP 01-245060 A	HCAPLUS
Mitsubishi Kasei Corp	1994			JP 06-145573 A	HCAPLUS
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Referenced Author (RAU)	Year (RKY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
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R-Tech Ueno, Ltd	1998			WO 98/17728 A1	HCAPLUS

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Mitsubishi Kasei Corp	1994			JP 06-145573 A	HCAPLUS
R-Tech Ueno, Ltd	1998			WO 98/16587 A1	HCAPLUS
R-Tech Ueno, Ltd	1998			WO 98/17728 A1	HCAPLUS

Referenced Author (RAU)	Year (RKY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
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Mitsubishi Kasei Corp	1994			JP 06-145573 A	HCAPLUS
R-Tech Ueno, Ltd	1998			WO 98/16587 A1	HCAPLUS
R-Tech Ueno, Ltd	1998			WO 98/17728 A1	HCAPLUS

Referenced Author (RAU)	Year (RKY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
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- L126 ANSWER 38 OF 85 HCAPLUS COPYRIGHT 2007 ACS on \$TN  
ACCESSION NUMBER: 1959:810859 HCAPLUS Full-text  
DOCUMENT NUMBER: 132:123003  
TITLE: Synthesis and liquid crystalline properties of new thermotropic polyurethanes  
AUTHOR(S): Lian, Yanqing; Li, Mingqi; Zhan, Jun; Zhou, Qixiang; Liu, Deshan  
CORPORATE SOURCE: Institute of Polymer Science and Engineering, Department of Chemical Engineering, Tsinghua University, Beijing, 100084, Peop. Rep. China  
SOURCE: Polymer Journal (Tokyo) (1999), 31(12), 1189-1193  
CODEN: POLJ88; ISSN: 0032-3896  
PUBLISHER: Society of Polymer Science, Japan  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
AB Mesogenic diol monomers, terephthaloyl dihydroxybenzoic acid diol esters (n = 2, 3, 4, 5, 6), were prepared from  $\omega$ -hydroxy-alkyl-4-hydroxybenzoate and terephthaloyl chloride, using the Schotten-Baumann reaction. Liquid crystalline polyurethanes (LCPUs) were obtained by solution polymerization of the mesogenic diol monomers with 4,4'-diphenylmethane diisocyanate (MDI) and 2,4-tolylene diisocyanate (2,4-TDI). The monomers and polyurethanes were studied by DSC, polarizing microscopy, wide-angle x-ray diffraction (WAXD), small-angle x-ray diffraction (SAXD) and high temperature x-ray diffraction. All LCPUs showed a nematic LC nature with wide temperature range.  
CC 35-5 (Chemistry of Synthetic High Polymers)  
IT Coupling reaction  
(Schotten-Baumann; preparation and phase transition temp  
of mesogenic terephthaloyl dihydroxybenzoic acid diol ester monomers and polymerization to obtain thermotropic polyurethanes)  
IT Liquid crystals  
(preparation and phase transition temp of mesogenic terephthaloyl dihydroxybenzoic acid diol ester monomers and polymerization to obtain thermotropic polyurethanes)  
IT Liquid crystals  
(transition; preparation and phase transition temp of mesogenic terephthaloyl dihydroxybenzoic acid diol ester monomers and polymerization to obtain thermotropic polyurethanes)

- IT 2009-83-8P, 6-Chlorohexanol 62702-43-6P, 6-Hydroxyhexyl-4-hydroxybenzoate  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(Intermediate; preparation and phase transition temperature of mesogenic terephthaloyl dihydroxybenzoic acid diol ester monomers and polymerization to obtain thermotropic polyurethanes)  
IT 159450-33-6P 161896-97-5P 216495-22-6P 256239-14-2P  
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(monomer; preparation and phase transition temperature of mesogenic terephthaloyl dihydroxybenzoic acid diol ester monomers and polymerization to obtain thermotropic polyurethanes)  
IT 77-58-7, Dibutyltin dilaurate  
RL: CAT (Catalyst use); USES (Uses)  
(polymerization catalyst; preparation and phase transition temp of mesogenic terephthaloyl dihydroxybenzoic acid diol ester monomers and polymerization to obtain thermotropic polyurethanes)  
IT 99-96-7, 4-Hydroxybenzoic acid, reactions 100-20-9, Terephthaloyl chloride 629-11-8, 1,6-Hexanediol 7647-01-0, Hydrochloric acid, reactions  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(preparation and phase transition temperature of mesogenic terephthaloyl dihydroxybenzoic acid diol ester monomers and polymerization to obtain thermotropic polyurethanes)

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- L126 ANSWER 39 OF 85 HCAPLUS COPYRIGHT 2007 ACS on STN  
ACCESSION NUMBER: 1999:281766 HCAPLUS Full-text  
DOCUMENT NUMBER: 131132245  
TITLE: Synthesis of rigid long side-chain liquid crystalline polymers with intermolecular hydrogen bonds  
AUTHOR(S): Xie, Xiao-Lin; Li, Bo-Geng; Pan, Zu-Ren  
CORPORATE SOURCE: Dep. Chem., Huazhong Univ. Sci. Technol., Wuhan, 430074, Peop. Rep. China  
SOURCE: Gaodeng Xuebiao Huaxue Xuebao. (1999), 20(3), 489-491  
CODEN: KTHPEM; ISSN: 0251-0790  
Gaocheng Jiaocui Chubanshe  
Journal  
Chinese  
AB Rigid long side-chain liquid crystalline polymers with intermol. hydrogen bonds were synthesized from random styrene-maleic anhydride copolymer (RSMVA) and *p*-hydroxybenzoic acid (HBA) with catalyst. Their chemical structures were characterized by FTIR-spectrum. Polarizing microscope with hot-stage and DSC were used to investigate the liquid crystallinity. RSMVA-g-HBA copolymers had intermol. hydrogen bonds and exhibited nematic mesophase. M.p. of the rigid side chain increased with increasing d.p.  
CC 35-8 (Chemistry of Synthetic High Polymers)  
Section cross-reference(s): 75  
IT **Melting point**  
(of rigid long side-chain liquid crystalline polymers with intermol. hydrogen bonds)  
IT 227001-01-6P, *p*-Hydroxybenzoic acid-maleic anhydride-styrene graft copolymer  
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
hydrogen bonds  
L126 ANSWER 40 OF 85 HCAPLUS COPYRIGHT 2007 ACS on STN  
ACCESSION NUMBER: 1999:279893 HCAPLUS Full-text  
DOCUMENT NUMBER: 131:144914  
TITLE: Synthesis of thermotropic liquid crystal copolymer containing *p*-hydroxy benzoic acid and its property  
AUTHOR(S): Yang, Yongsheng; Zhao, Lijun; Dong, Dawen; Ni, Yushan  
CORPORATE SOURCE: Heilongjiang Institute of Sports Technology, Harbin, 150000, Peop. Rep. China  
SOURCE: Dongbei Shida Xuebao, Ziran Kexueban (1999), (1), 52-56  
CODEN: DSZKEE; ISSN: 1000-1832  
Dongbei Shifan Daxue Xueshu Qikan  
Journal  
PUBLISHER: Dongbei Shifan Daxue Xueshu Qikan  
DOCUMENT TYPE: Journal

- LANGUAGE: Chinese  
AB A dicarboxylic acid monomer, *N,N'*-hexane-1,6-diylbis(trimellitimide), was prepared by the reaction of trimellitic anhydride with 1,6-hexamethylenediamine by flux polymerization, and a series of copolymers were synthesized by thermal condensation of the dicarboxylic acid with 4,4'-dihydroxydiphenyl ketone, *p*-hydroxybenzoic acid, and different molar ratio of terephthalic acid. The property of the resulting copolymers were characterized by polarized light microscopy, DSC, and wide angle X-ray diffraction. All the copolymers could form a nematic phase over a wide temperature range above their melt.  
CC 35-5 (Chemistry of Synthetic High Polymers)  
Section cross-reference(s): 75  
ST thermotropic liq crystal polyester polyimide synthesis; trimellitic anhydride hexamethylenediamine reaction; dihydroxydiphenyl ketone hydroxybenzoic copolymer synthesis morphol.  
IT Polyesters, preparation  
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation) (liquid-crystalline; synthesis, morphol., and rheol. and thermal properties of thermotropic liquid crystal polyester-polyimides)  
IT Polymerization  
(melt; synthesis, morphol., and rheol. and thermal properties of thermotropic liquid crystal polyester-polyimides)  
IT Polyimides, preparation  
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation) (polyester-, liquid crystal; synthesis, morphol., and rheol. and thermal properties of thermotropic liquid crystal polyester-polyimides)  
IT Polyesters, preparation  
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation) (polyimide-, liquid crystal; synthesis, morphol., and rheol. and thermal properties of thermotropic liquid crystal polyester-polyimides)  
IT **Glass transition temperature**  
Polymer morphology  
(synthesis, morphol., and rheol. and thermal properties of thermotropic liquid crystal polyester-polyimides)  
IT 4649-28-9P  
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(in synthesis of thermotropic liquid crystal copolymer containing *p*-hydroxy benzoic acid)  
IT 124-09-4, 1,6-Hexanediamine, reactions 552-30-7  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(in synthesis of thermotropic liquid crystal copolymer containing *p*-hydroxy benzoic acid)  
IT 161896-96-4P, 4,4'-Dihydroxydiphenyl ketone-*p*-Hydroxybenzoic acid-terephthalic acid copolymer 180463-34-7P  
235104-35-5P  
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
(liquid crystal; synthesis, morphol., and rheol. and thermal properties of thermotropic liquid crystal polyester-polyimides)  
L126 ANSWER 41 OF 85 HCAPLUS COPYRIGHT 2007 ACS on STN  
ACCESSION NUMBER: 1998:519856 HCAPLUS Full-text  
DOCUMENT NUMBER: 129:148831  
TITLE: Preparation of diacylphthalol derivatives.  
INVENTOR(S): Ueno, Ryuzo; Ito, Shigeru; Minami, Kenji;

**Patent Assignee:** Kabushiki Kaisha Ueno Seiyaku Oyo Kenkyujo, Japan  
**Source:** U.S., 51 PP., Division of U.S. Ser. No. 764,269.  
**Code:** USXXAM

**Document Type:** Patent

**Language:** English

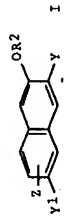
**Family Acc. Num. Count:** 2

**Patent Information:**

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5786523	A	19980728	US 1997-972480	19971118
US 6252104	B1	20010626	US 1996-764269	19961212
US 5847233	A	19981208	US 1997-975189	19971120
			US 1996-764269	A3 19961212
			JP 1995-86784	A 19950412
			WO 1996-JP979	W 19960410

**Other Source(s):** MARPAT 129:148831

GI



**AB** Title compds. [1; Y, Y1 = (CONH)nX, COR; X = Ph, naphthyl, anthraquinonyl, benzimidazolonyl, carbazoyl; R, R1 = OH, alkoxy, halo, PhO, PhCH2O, phenacyloxy; R2 = H, alkaline metal, alkyl, acyl, phenylalkyl; Z = H, halo NO2, nitroso, amino, n = 1, 2; provided that R2 and Z do not both = H when R and R1 are both OH], were prepared I can be used as raw materials for synthesis of dyes, pigments, photosensitive materials, and the like. Thus, 3,6-dicarboxy-2-hydroxynaphthalene and o-chloroaniline in xylene at 90° were treated with PC13 followed by heating at 140° for 3 h to give 3,6-bis(2-chlorophenylaminocarbonyl)-2-hydroxynaphthalene.

IC ICM C07C039-14

INCL 568735000

**CC** 23-24 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)

**IT** Section cross-reference(s): 41, 74

62-53-3, Aniline, reactions 67-63-0, Isopropyl alcohol, reactions 70-11-1, Phenacyl bromide 75-03-6, Ethyl iodide 90-04-0, o-Anisidine 95-23-8, 95-51-2, o-Chloroaniline 95-53-4, o-Toluidine, reactions 95-68-1 97-35-8, 98-16-8 99-09-2 100-44-7, Benzyl chloride, reactions 108-24-7, Acetic anhydride 114-38-5, o-Chlorophenylurea 117-79-3, 2-Aminoanthraquinone 132-32-1, 3-Amino-9-ethylcarbazole 134-20-3, Methyl 2-aminobenzoate 134-32-7, 1-Naphthylamine 139-59-3, 4-Aminodiphenyl ether 590-28-3, Potassium cyanate 771-60-8, Pentafluoroaniline 6268-05-9, 2,5-Dimethoxy-4-benzoylaminobenzene 160592-73-4  
 RU: RCT (Reactant); RACT (Reactant or reagent)  
 RL: RCT (Reaction of diacylnaphthol derivs.)

RETABE

Referenced Author (RAU)	Year   VOL   PG	Referenced Work (RWK)	File
	(RPV)   (RVL)   (RPG)		

**Accession Number:** 1997:626698  
**Document Number:** 129:162018  
**Title:** Glass transitions of thermotropic aromatic copolyesters  
**Author(s):** Bensaad, Salima; Noel, Claudire  
**Corporate Source:** Laboratoire Physicochimie Structurale Macromoleculaire, ESPCI, Paris, 75231, Fr.  
**Source:** Macromolecular Chemistry and Physics (1998), 199(8), 1501-1509  
**Code:** MCHPES; ISSN: 1022-1352  
**Publisher:** Huethig & Wepf Verlag  
**Document Type:** Journal  
**Language:** English

**AB** Three thermotropic copolyesters consisting of terephthalic acid (TA), p-hydroxybenzoic acid (HBA), 4,4'-oxydibenzoic acid (OBBA), and methylhydroquinone (MH), and 2 copolyesters made from HBA, isophthalic acid (IA), and p-hydroquinone (H) were investigated by differential scanning calorimetry and optical microscopy. Amorphous isotropic samples were obtained either by rapid precipitation or by film casting. For all investigated polymers, the glass transition temperature in the nematic state (TgN) was found to be higher than that of samples in the isotropic state (Tgi). Annealing of initially amorphous isotropic samples at temps. above Tgi resulted in the systematic development of order. The ordering process does not seem to be restricted to ordered nucleation sites which grow to encompass the whole sample, but appears rather global, the chains ordering more or less uniformly throughout the sample.

**CC** 36-2 (Physical Properties of Synthetic High Polymers)

**IT** Section cross-reference(s): 75

**ST** Thermotropic arom polyester glass temp; liq cryst arom polyester glass temp

**IT** Glass transition temperature

(glass transitions and thermal annealing of thermotropic aromatic copolyesters)

**IT** 99-96-70, p-Hydroxybenzoic acid, polymer with hydroquinone, isophthalic acid, and modifying monomer 121-91-5D, isophthalic acid, polymer with hydroquinone, hydroxybenzoic acid, and modifying monomer 123-31-9D, Hydroquinone, polymer with isophthalic acid, hydroxybenzoic acid and modifying monomer 144372-82-7, p-Hydroxybenzoic acid-methylhydroquinone-4,4'-oxydibenzoic acid-terephthalic acid copolymer  
 RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)  
 (glass transitions and thermal annealing of thermotropic aromatic copolyesters)

**LI26 ANSWER 43 OF 85** HCAPLUS COPYRIGHT 2007 ACS on STN

**Accession Number:** 1997:626698 HCAPLUS Full-text

**Document Number:** 127:278723

**Title:** Studies on the synthesis and properties of ferroelectric side chain liquid crystalline polyoxetanes

**Author(s):** Hsu, Li-Ling; Chang, Teh-Chou; Tsai, Wen-Liang; Lee, Chien-Dhau

**Corporate Source:** Department of Chemical Engineering, Chung Yuan



SOURCE: Christian University, Chung Li, 32023, Taiwan  
Journal of Polymer Science, Part A: Polymer Chemistry  
(1997), 35(14), 2843-2853

CODEN: JPACEC; ISSN: 0887-624X

Wiley

PUBLISHER:  
DOCUMENT TYPE:

LANGUAGE: English

AB Two series of novel ferroelec. liquid crystalline (FLC) monomers were prepared from 3-(hydroxymethyl)-3-methyloxetane, used as the backbone unit, and 2-(S)-[2-(S)-methylbutoxy]propionic acid, as chiral moiety. The corresponding polyoxetanes were prepared by ring-opening polymerization using BF<sub>3</sub>·OEt<sub>2</sub> as initiator. The structure and liquid crystal phase behavior and elec. properties of the resulting polyoxetanes were studied. Before bonding to the chiral mol. moiety, the two series of carboxylic acids, 4-[6-[(3-methyloxetan-3-yl)methoxy]alkoxy]benzoic acids and 4,4'-[6-[(3-methyloxetan-3-yl)alkoxy]biphenyl]carboxylic acids, show the phase sequence K-Sc-I [smectic isotropic] and K-Sc-N-I [smectic nematic isotropic], resp. After connection, the phase behavior of the corresponding chiral monomers is changed from K-Sc-I to K-Sc'-N'-I and from K-Sc-N-I to K-Sc'-Sa-I. Only the phase sequence K-Sc'-Sa-I is observed in both series of polyoxetanes. All of the synthesized monomers exhibited enantiotropic chiral smectic C(Sc') phase. The monomers, with the biphenyl unit linked directly with a chiral center, possessed higher spontaneous polarization (P<sub>s</sub>). Polyoxetanes possess a wide temp. range for the liquid crystal phase, at about 120°, and the Sc' phase range can be up to 95°. The position of the biphenyl unit does not affect the spontaneous polarization of the side chain FLC polyoxetanes.

CC 36-5 (Physical Properties of Synthetic High Polymers)

IT Section cross-reference(s): 35, 75

IT Liquid crystals

(chiral smectic C, Schlieren texture; synthesis and phase transition temperature and stability of ferroelec. liquid crystals and side chain liquid crystalline polyoxetanes)

IT Liquid crystals

(ferroelec.; synthesis and phase transition temperature and stability of ferroelec. liquid crystals and side chain liquid crystalline polyoxetanes)

IT Ferroelectric materials

(liquid-crystal; synthesis and phase transition temperature and stability of ferroelec. liquid crystals and side chain liquid crystalline polyoxetanes)

IT Polymerization

Polymerization catalysts

(ring-opening; synthesis and phase transition temperature and stability of ferroelec. liquid crystals and side chain liquid crystalline polyoxetanes)

IT Liquid crystals

(side chain; synthesis and phase transition temperature and stability of ferroelec. liquid crystals and side chain liquid crystalline polyoxetanes)

IT Liquid crystals

(smectic, Schlieren texture; synthesis and phase transition temperature and stability of ferroelec. liquid crystals and side chain liquid crystalline polyoxetanes)

IT Phase transition

Phase transition enthalpy  
(synthesis and phase transition temperature and stability

of ferroelec. liquid crystals and side chain liquid crystalline polyoxetanes)

IT Liquid crystals, polymeric

Polyoxyalkylenes, properties

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
(synthesis and phase transition temperature and stability

of ferroelec. liquid crystals and side chain liquid crystalline

polyoxetanes)

IT 196864-69-4P 196864-72-9P 196864-75-2P 196864-79-6P 196864-81-0P

196864-84-3P 196864-86-5P 196864-89-8P 196864-93-4P 196864-95-6P

196864-97-8P 196864-99-0P

RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP

(Preparation); RACT (Reactant or reagent)

(monomer; synthesis and phase transition temperature and stability of ferroelec. liquid crystals and side chain liquid crystalline polyoxetanes)

IT 109-63-7, Boron trifluoride diethyl etherate

RL: CAT (Catalyst use); USES (Uses)

(synthesis and phase transition temperature and stability

of ferroelec. liquid crystals and side chain liquid crystalline

polyoxetanes)

IT 196864-91-2P 196865-01-7P 196865-03-9P 196865-04-0P 196865-05-1P

196865-06-2P 196865-07-3P 196865-08-4P 196865-09-5P 196865-10-8P

196865-11-9P 196865-12-0P 196865-13-1P 196865-14-2P 196865-15-3P

196865-16-4P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)

(synthesis and phase transition temperature and stability

of ferroelec. liquid crystals and side chain liquid crystalline

polyoxetanes)

IT 99-96-7, reactions 538-75-0, Dicyclohexylcarbodiimide

1122-58-3 58574-03-1, 4'-Hydroxy-4-biphenylcarboxylic acid

103781-35-7, 3-Methyl-3-((6-bromohexyloxy)methyl)oxetane 150282-35-2

157229-71-5, 3-Methyl-3-((12-bromododecoxy)methyl)oxetane 196864-51-4,

3-Methyl-3-((9-bromononyloxy)methyl)oxetane 196864-56-9,

3-Methyl-3-((10-bromodecoxy)methyl)oxetane

RL: RCT (Reactant); RACT (Reactant or reagent)

(synthesis and phase transition temperature and stability

of ferroelec. liquid crystals and side chain liquid crystalline

polyoxetanes)

IT 196864-49-0P, 4-[[6-[(3-Methyloxetan-3-yl)methoxy]hexoxy]-benzoic

acid 196864-54-7P, 4-[[6-[(3-Methyloxetan-3-yl)methoxy]nonoxy]-

benzoic acid 196864-59-2P, 4-[[10-[(3-Methyloxetan-3-

yl)methoxy]decoxy]benzoic acid 196864-64-9P,

4-[[12-[(3-Methyloxetan-3-yl)methoxy]dodecoxy]benzoic acid

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT

(Reactant or reagent)

(synthesis and phase transition temperature and stability

of ferroelec. liquid crystals and side chain liquid crystalline

polyoxetanes)

RETABLE

Referenced Author	Year	VOL	PG	Referenced Work	Referenced
(RAU)	(RPT)	(RVL)	(RPG)	(RWK)	File
Bruce, D	1995	119	199	Liq Cryst	HCAPJUS
Cooray, N	1994	127	11592	Macromolecules	HCAPJUS
Corey, E	1983	124	15371	Tetrahedron Lett	HCAPJUS
Ford, W	1989	130	1460	Polym Prep (Am Chem	
Hsiue, G	1995	128	14366	Macromolecules	HCAPJUS
Kawakami, Y	1991	124	14531	Macromolecules	HCAPJUS
Kitazume, T	1990	112	16608	J Am Chem Soc	HCAPJUS



Lu, Y 11994 132 1551 Polym Bull HCAPLUS  
 Meyer, R 1975 136 169 J Phys HCAPLUS  
 Motoi, M. 1993 166 1778 Bull Chem Jpn HCAPLUS  
 Shibaev, V 1984 160 1173 Adv Polym Sci HCAPLUS  
 Shibaev, V 1988 19 1299 Polym Bull HCAPLUS  
 Suzuki, T 1988 19 1755 Macromol Chem, Rapid HCAPLUS  
 Tsai, W 1993 113 1765 Liq Cryst HCAPLUS  
 Tsai, W 1994 116 1143 Liq Cryst HCAPLUS

L126 ANSWER 44 OF 85 HCAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 1997:726882 HCAPLUS Full-text  
 DOCUMENT NUMBER: 127:346739

TITLE: Synthesis and characterization of liquid crystalline polymers from p-hydroxybenzoic acid, poly(ethylene terephthalate), and third monomers

AUTHOR(S): Li, Xin-Gui; Huang, Mei-Rong; Guan, Gui-He; Sun, Tong  
 CORPORATE SOURCE: Department of Materials Science Engineering, Tongji University, Shanghai, 200092, Peop. Rep. China  
 SOURCE: Journal of Applied Polymer Science (1997), 66(11), 2129-2138  
 CODEN: JAPNAB; ISSN: 0021-8995

PUBLISHER: Wiley

LANGUAGE: English

AB Eight new p-hydroxybenzoic acid (PHB)-PET copolymers containing vanillic acid (VA), p-aminobenzoic acid, m-hydroxybenzoic acid, hydroquinone/terephthalic acid (TPA), bisphenol A/TPA, 1,5-naphthalenediol/TPA, 2,7-naphthalenediol/TPA, and 1,4-dihydroxyanthraquinone/TPA as third monomers were prepared by melt polycondensation and were characterized using thermal anal., <sup>1</sup>H-NMR, wide-angle x-ray diffraction (WAXD), and SEM. The exptl. results show that PHB/PET/VA copolymers exhibit a higher polycondensation rate, lower melting temperature, and higher thermostability as compared to the other copolymers and PHB/PET polymers. The as-spun fibers derived from the PHB/PET/VA copolymers with different VA contents show tensile strengths, Young's moduli, and break elongations of 0.6-1.5 GPa, 28-67 GPa, and 7-9%, resp. A highly oriented fibrillar structure in the PHB/PET/VA copolymer fibers was observed using WAXD and SEM. The most effective third monomer for enhancing the polycondensation rate and mol. weight of the copolymers and for improving their thermal and mech. properties is VA.

CC 33-5 (Chemistry of Synthetic High Polymers)

IT Section cross-reference(s): 36, 40, 75

Glass transition temperature

Thermal properties  
 (of liquid-crystalline hydroxybenzoic acid-PET copolymers containing adnl. monomers)

IT 99-96-7, reactions

RL: PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)

(Kinetics of copolym. with PET and vanillic acid acetate)

198222-23-0P, Ethylene glycol-p-hydroxybenzoic acid-terephthalic acid-vanillic acid acetate copolymer 198222-24-1P,

p-Acetamidobenzoic acid-ethylene glycol-p-hydroxybenzoic acid-terephthalic acid copolymer 198222-25-2P, m-Acetoxybenzoic acid copolymer

glycol-p-hydroxybenzoic acid-terephthalic acid copolymer

198222-26-3P, Ethylene glycol-hydroquinone diacetate-p-

hydroxybenzoic acid-terephthalic acid copolymer 198222-27-4P,

Bisphenol A diacetate-ethylene glycol-p-hydroxybenzoic acid-terephthalic acid copolymer 198222-28-5P, 1,4-Diacetoxyanthraquinone-ethylene

glycol-p-hydroxybenzoic acid-terephthalic acid copolymer

198222-29-6P, 1,5-Diacetoxyanthraquinone-ethylene

glycol-p-hydroxybenzoic acid-terephthalic acid copolymer 198222-30-7P, 2,7-Diacetoxyanthraquinone-ethylene glycol-p-hydroxybenzoic acid-terephthalic acid copolymer  
 RL: PEP (Physical, engineering or chemical process); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)

hydroxybenzoic acid-PET copolymers containing adnl. monomers)

RETABLE

Referenced Author (RAU)	Year (RFP)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	File
Alonso, R	1993	26	14304	Macromolecules	
Cao, M	1985	23	1521	J Polym Sci Polym Ph	HCAPLUS
Hudson, S	1993	34	1123	Polymer	HCAPLUS
Jackson, W	1976	14	12043	J Polym Sci Polym Ch	HCAPLUS
Kim, S	1994	32	1371	J Polym Sci Part B	HCAPLUS
Lader, H	1979	17	11661	J Polym Sci Polym Ph	HCAPLUS
Li, X	1995	227	169	Angew Makrochl Chem	HCAPLUS
Li, X	1992	3	1207	Chin Chem Lett	HCAPLUS
Li, X	1993	11	1230	Chin J Polym Sci	HCAPLUS
Li, X	1994	51	1913	J Appl Polym Sci	HCAPLUS
Li, X	1996	159	11	J Appl Polym Sci	HCAPLUS
Li, X	1991	8	11	J China Text Univ (E)	
Li, X	1988	1		PhD Dissertation, Chi	
Nicely, V	1987	120	1573	Macromolecules	HCAPLUS
Sugiyama, H	1985	130	12329	J Appl Polym Sci	HCAPLUS
Sun, T	1989	30	11257	Polymer	HCAPLUS

L126 ANSWER 45 OF 85 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1998:227854 HCAPLUS Full-text

DOCUMENT NUMBER: 128:230927

TITLE: Dielectric relaxation of rigid-chain thermotropic LC polymers studied by the method of dielectric losses and thermostimulated depolarization current

AUTHOR(S): Dreval, V. E.; Lushcheikin, G. A.; Kulichikhin, V. G.

CORPORATE SOURCE: Inst. Neftekhim. Sint. im. Topchieva, Moscow, 117912, Russia

SOURCE: Vysokomolekulyarnye Soedineniya, Seriya A i Seriya B (1997), 39(12), 1958-1965

CODEN: VSSBEE; ISSN: 1023-3091

PUBLISHER: MAIK Nauka

DOCUMENT TYPE: Journal

LANGUAGE: Russian

AB Relaxation transitions in a copolyester of p-hydroxybenzoic acid and PET (PEE-1) and a copolyester of p-hydroxybenzoic acid and 2,6-hydroxynaphthoic acids (PEE-2) were studied by the methods of dielec. relaxation and thermostimulated depolarization current in a wide range of frequencies and temps. Earlier unknown transitions at high and low temps. were revealed, and their relation to the structure and structural peculiarities of LC polymers was considered.

High-temperature transitions at 170-190°C (at a frequency of 1 Hz) were explained by the processes of glass transition (PEE-1) as well as by their superposition with polymorphic transitions (PEE-2). At temps. above the principal glass transition temperature, PEE-1 was shown to possess a higher mol. mobility as compared to PEE-2. The hindered rotational mobility of PEE-2 was preserved up to temps. close to the melting temperature T<sub>m</sub> of the crystalline regions of polymer.

CC 36-5 (Physical Properties of Synthetic High Polymers)

IT Section cross-reference(s): 75

Dielectric constant

Dielectric loss  
Dielectric relaxation  
Electric resistance

# Glass transition temperature

(dielec. relaxation of rigid-chain thermotropic LC polymers studied by the method of dielec. losses and thermostimulated depolarization current)

IT 25922-54-2, p-Hydroxybenzoic acid-ethylene glycol-terephthalic acid copolymer **81843-52-9**, p-Hydroxybenzoic acid-2,6-hydroxynaphthoic acid copolymer

RL: PRP (Properties)

(dielec. relaxation of rigid-chain thermotropic LC polymers studied by the method of dielec. losses and thermostimulated depolarization current)

L126 ANSWER 46 OF 85 HCAPLUS COPYRIGHT 2007 ACS on STN  
ACCESSION NUMBER: 1996:733938 HCAPLUS Full-Text  
DOCUMENT NUMBER: 126:18656

TITLE: Process for producing naphthol derivatives  
**Ueno, Ryuzo;** Ito, Shigeru; Minami, Kenji;  
**Kitayama, Masaya**

INVENTOR(S): Kabushiki Kaisha Ueno Selyaku Oyo Kenkyujo, Japan  
SOURCE: PCT Int. Appl., 78 pp.  
CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 2

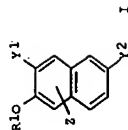
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9632366	A1	19961017	WO 1996-JP979	19960410
W: CA, CN, JP, KR, US				
PH: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
CA 2192342	A1	19961017	CA 1996-2192342	19960410
EP 765858	A1	19970402	EP 1996-909328	19960410
EP 765858	B1	19991222		
R: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				

CN 1155882	A	19970730	CN 1996-190592	19960410
CN 1073081	B	20011017		
AT 187955	T	20000115	AT 1996-909328	19960410
ES 2142576	T3	20000416	ES 1996-909328	19960410
PT 765858	T1	20000531	PT 1996-909328	19960410
JP 3228516	B2	20011112	JP 1996-530874	19960410
US 6252104	B1	20010626	US 1996-764269	19961212
US 5847233	A	19981208	US 1997-975189	19971120
GR 3032762	T3	20000630	GR 2000-400464	20000225
PRIORITY APPLN. INFO.:				
			JP 1995-86784	A 19950412
			WO 1996-JP979	W 19960410
			US 1996-764269	A3 19961212

CASREACT 126:18656; MARPAT 126:18656

OTHER SOURCE(S):  
GI



AB The title compds. [I; Y1, Y2 = (CONH)N<sub>x</sub>, COR<sub>2</sub>; X = (un)substituted Ph, naphthyl, anthraquinonyl, benzimidazolyl, carbazolyl; R1 = H, an alkali metal, Cl-6 alkyl or acyl, phenylalkyl; R2 = OH, Cl-6 alkoxy, halo, PhCH<sub>2</sub>O, PhO, phenacyloxy; Z = H, halo, NO<sub>2</sub>, NO, NH<sub>2</sub>, and either of the naphthalene rings may be substituted thereby; n = 1-2; when R2 = OH, R1, Z ≠ H are prepared I are useful materials in the production of dyes, pigments, photosensitive materials, etc. Thus, I (Y1 = Y2 = CO<sub>2</sub>H, Z = H; R1 = OH) was reacted with o-chloroaniline in the presence of PCl<sub>3</sub> to give I (Y1 = Y2 = 2-chlorophenylaminocarbonyl, Z = H, R1 = H).

IC ICM C07C065-11

ICS C07C065-24; C07C069-94; C07C205-59; C07C207-04; C07C229-70;

C07C231-02; C07C235-66; C07C237-48; C07D235-26; C07D209-82

CC 25-24 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)

IT 62-53-3, Aniline, reactions 67-56-1, Methanol, reactions 67-63-0,

Isopropyl alcohol, reactions 70-11-1, Phenacyl bromide 74-88-4,

Iodoethane, reactions 75-03-6, Iodoethane 90-04-0, o-Methoxyaniline

95-23-8 95-51-2, o-Chloroaniline 95-53-4, o-Methylaniline, reactions

95-68-1, 2,4-Dimethylaniline 97-35-8, 3-Amino-1-diethylaminosulfonyl-4-

methoxybenzene 98-16-8, 1-Amino-3-trifluoromethylbenzene 99-09-2

100-44-7, Benzyl chloride, reactions 108-24-7, Acetic anhydride

117-79-3, 2-Aminoanthraquinone 132-32-1, 3-Amino-9-ethylcarbazole

134-20-3, Methyl 2-aminobenzoate 134-32-7, 1-Aminonaphthalene

139-59-3, 4-Aminodiphenyl ether 771-60-8, Pentafuoroaniline

6268-05-9, 2,5-Dimethoxy-4-benzoylaminoaniline 160592-73-4

RL: RCT (Reactant); RACT (Reactant or reagent)

(Preparation of naphthol derivs.)

L126 ANSWER 47 OF 85 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1997:12107 HCAPLUS Full-Text

DOCUMENT NUMBER: 126:131972

TITLE: TSDC study on the broadened glass transition of a

liquid crystalline copolyester

AUTHOR(S): Shimizu, Hiroshi

CORPORATE SOURCE: Natl. Inst. Mater. Chem. Res., Tsukuba, 305, Japan

SOURCE: Netzu Sokutei (1996), 23(3), 140-141

CODEN: NESOD2; ISSN: 0386-2615

PUBLISHER: Nippon Netsu Sokutei Gakkai

DOCUMENT TYPE: Journal

LANGUAGE: Japanese

AB An addnl. peak was observed in the global TSDC (thermally stimulated depolarization current) spectra with varying polling temperature for a liquid-crystalline copolyester prepared from 4-hydroxybenzoic acid and 2,6-hydroxynaphthoic acid, indicating that it causes broadening of the glass transition of the copolyester.

CC 36-5 (Physical Properties of Synthetic High Polymers)

ST Section cross-reference(s): 75

hydroxybenzoic hydroxynaphthoic copolymer polling, glass

**transition;** liq crystal polyester poling glass transition; TSDC

IT liq crystal polyester glass transition  
Dielectric polarization

**Glass transition temperature**

Liquid crystals, polymeric

Thermally stimulated depolarization current

(TSDC study on broadened glass **transition** of liquid crystalline

copolyester polarized at different **temps.**)

IT Liquid crystals, polymeric

RL: PEP (Physical, engineering or chemical process); PRP (Properties);

PROC (Process)

(copolyester; TSDC study on broadened glass transition of liquid crystalline

copolyester polarized at different **temps.**)

IT **81843-52-9**, 4-Hydroxybenzoic acid-2,6-hydroxynaphthoic acid

copolymer

RL: PEP (Physical, engineering or chemical process); PRP (Properties);

PROC (Process)

(TSDC study on broadened glass transition of liquid crystalline copolyester

polarized at different **temps.**)

L126 ANSWER 48 OF 85 HCAPLUS COPYRIGHT 2007 ACS on STN  
ACCESSION NUMBER: 1995:746866 HCAPLUS Full-text

DOCUMENT NUMBER: 123:113413

TITLE:

Positron Annihilation Lifetime Measurements of Free

Volume in Wholly Aromatic Copolyesters and Blends

McOullagh, C. M.; Yu, Z.; Jamieson, A. M.; Blackwell,

J.; McGervey, J. D.

Department of Macromolecular Science, Case Western

Reserve University, Cleveland, OH, 44106-7202, USA

Macromolecules (1995), 28(18), 6100-7

CODEN: MAMOBX; ISSN: 0024-9297

American Chemical Society

PUBLISHER:

DOCUMENT TYPE:

LANGUAGE:

AB The **temperature** dependence of free volume in random copolyesters of

hydroxybenzoic acid (HBA) and hydroxynaphthoic acid (HNA) was studied from -

50° to +350° by measuring the average lifetime,  $\tau_3$ , and intensity, I<sub>3</sub>, of

ortho-positronium (o-Ps) annihilation. These parameters were also used to

determine the fractional free volume, f<sub>hps</sub>. Significant changes in the

**temperature** coeffs. of  $\tau_3$ , I<sub>3</sub>, and f<sub>hps</sub> were observed at the  $\alpha$ -**transition**

**temperature**, T<sub>α</sub>, and at the melt **transition temperature**, T<sub>m</sub>. The results

indicate that both the average size and the number of free volume cavities

occupied by positronium increase at T<sub>α</sub>, continue to increase uniformly with

**temperature** up to T<sub>m</sub>, and then level off. A miscible blend of 75/25 and 30/70

copoly(HBA/HNA) with overall monomer ratio 60/40 exhibits a single melt

transition well below those of the component copolymers or a random copolymer

of the same composition, suggesting that the chains are less ordered in the

blend. Comparison of PALS data for these systems indicates that the blend has

a larger f<sub>hps</sub> below T<sub>m</sub>, which is primarily due to a larger number of cavities

accessible to o-Ps, and a substantially larger **temperature** coefficient of f<sub>hps</sub>

between T<sub>α</sub> and T<sub>m</sub>. In the nematic melt, the free volume of the blend

decreases to that of the pure copolymers, indicating that f<sub>hps</sub> in the nematic

phase is independent of composition. Compared to other amorphous or semicryst.

polymers, the HBA/HNA copolymers have both fewer detectable free volume

cavities and smaller average cavity sizes, presumably due to the "quenched

nematic" morphol. of the noncryst. regions.

CC 36-5 (Physical Properties of Synthetic High Polymers)

IT **Glass temperature and transition**

(free volume in wholly aromatic **hydroxybenzoic**

acid-hydroxynaphthoic polyesters and their blends in relation to)

IT **81843-52-9**, 4-Hydroxybenzoic acid-2-hydroxy-6-naphthoic acid

copolymer

RL: PEP (Physical, engineering or chemical process); PRP (Properties);

PROC (Process)

(positron annihilation lifetime measurements of free volume in wholly

aromatic copolyesters and blends)

L126 ANSWER 49 OF 85 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1996:39644 HCAPLUS Full-text

DOCUMENT NUMBER: 124:147310

TITLE:

Determination of phase transitions in a longitudinal

polymer liquid crystal: Comparison of the sensitivity

of TSD, TMA and DSC

Bilyeu, Bryan

Center Materials Characterization, University North

Texas, Denton, TX, 76203-5308, USA

Annual Technical Conference - Society of Plastics

Engineers (1995), 53rd(Vol. 3), 4302-7

CODEN: ACPED4; ISSN: 0272-5223

Society of Plastics Engineers

PUBLISHER:

DOCUMENT TYPE:

LANGUAGE:

AB A longitudinal polymer liquid crystal copolymer containing poly(ethylene

terephthalate) and a 0.6 mol fraction of p-hydroxybenzoic acid was studied.

The liquid crystal phase transitions were determined by thermally stimulated

depolarization (TSD), thermal mech. anal. (TMA), and DSC. The TSD detected

two phase transitions ( $\alpha$  and  $\alpha'$ ) at 338 and 374 K. The DSC detected only one

transition ( $\alpha$ ) at 333 K. The TMA detected one transition ( $\alpha'$ ) at 373 K.

While each of the three techniques are important in phase **transition**

**temperature** studies of PLCs, the TSD has greater sensitivity than the DSC and

TMA.

CC 36-3 (Physical Properties of Synthetic High Polymers)

IT Section cross-reference(s): 75

ST **hydroxybenzoic** acid copolymer phase **transition**;

polyester liq crystal phase transition; terephthalic acid liq crystal

phase transition; ethylene glycol liq crystal phase transition

IT **25822-54-2**, Ethylene glycol-p-hydroxybenzoic acid-terephthalic

acid copolymer

RL: PEP (Physical, engineering or chemical process); PRP (Properties);

PROC (Process)

(determination of phase transitions in polyester liquid crystals)

L126 ANSWER 50 OF 85 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1994:246166 HCAPLUS Full-text

DOCUMENT NUMBER: 120:246166

TITLE:

Phase Structures and Phase Diagrams in Polymer

Liquid-Crystal Systems: copolymers of Poly(ethylene

terephthalate) and p-Hydroxybenzoic acid

Brostow, Witold; Hess, Michael; Lopez, Betty L.

Cent. Mater. Charact., Univ. North Texas, Denton, TX,

76203-5308, USA

Macromolecules (1994), 27(8), 2262-9

CODEN: MAMOBX; ISSN: 0024-9297

DOCUMENT TYPE:

LANGUAGE:

AB The phase diagram of **transition temps.** vs. the mole fraction, x, of the

liquid-crystalline component PHB was determined for a series of copolymers

PEH/xPHB, where PEH = poly(ethylene terephthalate) and PHB = p-hydroxybenzoic

acid. The diagram includes both equilibrium and nonequil. phases and is based

on results reported here as well as on those of earlier investigators and on results obtained by several techniques, with identical samples studied by the same techniques but at different locations. The diagram is fairly complex. The quasi-liquid phase reported earlier is discussed in some detail. The importance of the diagram for intelligent processing is discussed.

CC 36-3 (Physical Properties of Synthetic High Polymers)

Section cross-reference(s): 68, 75

IT Crystallization

*Glass temperature and transition*

Heat of fusion and Heat of freezing

Mechanical loss

(of liquid-crystalline ethylene glycol-hydroxybenzoic

acid-terephthalic acid copolymers, composition effect on, phase structure

and phase diagrams in relation to)

IT 25822-54-2, Ethylene glycol-p-hydroxybenzoic acid-terephthalic

acid copolymer

RL: PRP (Properties)

(liquid-crystalline, phase structure and phase diagrams of, composition

effect on)

L126 ANSWER 51 OF 85 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1994:324834 HCAPLUS Full-text

DOCUMENT NUMBER: 120:324834

TITLE: Blends of PEEK and PET-PHB 60: a preliminary study on

thermal and morphological aspects

Acierno, D.; Naddeo, C.

CORPORATE SOURCE: Dep. Chem. Food Eng., Univ. Salerno, Fisciano, 84084,

Italy

SOURCE: Polymer (1994), 35(9), 1994-6

CODEN: POLMAG; ISSN: 0032-3861

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The system PEEK/PET [poly(ethylene terephthalate)]-PHB 60 (p-hydroxybenzoic acid) has been studied by differential scanning calorimetry and SEM. The thermal anal. data, especially the glass transition temperature, indicated that the blends are compatible. The SEM anal. seems to confirm this, showing a mostly homogeneous structure. When the two phases are still evident, a good adhesion is shown; this is of interest in terms of the mech. properties, results for which are not yet available.

CC 37-5 (Plastics Manufacture and Processing)

Section cross-reference(s): 36

IT *Glass temperature and transition*

Polymer morphology

(of ethylene glycol-hydroxybenzoic acid-terephthalic acid

copolymer-PEEK blends, composition effect on)

IT 25822-54-2, Ethylene glycol-p-hydroxybenzoic acid-terephthalic

acid copolymer

RL: PRP (Properties)

(PEEK blends, morphol. and thermal properties of, composition effect on)

L126 ANSWER 52 OF 85 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1992:427748 HCAPLUS Full-text

DOCUMENT NUMBER: 117:27748

TITLE: Gas transport properties of thermotropic

liquid-crystalline copolymers. II. The effects of

copolymer composition

Weinkauff, D. H.; Paul, D. R.

Cent. Polym. Res., Univ. Texas, Austin, TX, 78712, USA

CORPORATE SOURCE: Journal of Polymer Science, Part B: Polymer Physics

(1992), 30(8), 837-49

CODEN: JPBPEM; ISSN: 0887-6266

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Gas transport properties are reported for a series of compression-molded films prepared from p-hydroxybenzoic acid (I)-2,6-hydroxynaphthoic acid (II) copolymers with 30/70, 58/42, 73/27, 75/25, and 80/30 mol% I/II. The mesomorphic and crystalline morphol. of the copolymer films is characterized using dynamic mech. thermal anal. (DMTA), SEM, DSC, and x-ray diffraction. As

evidenced by DMTA, the Ph and naphthyl moieties of the copolymers exhibit a

significant degree of segmental mobility below the glass transition

temperature. The nonlinear nature of the naphthyl unit leads to a more

hindered rotation about the chain axis. Permeability measurements are made

for He, H<sub>2</sub>, O<sub>2</sub>, N<sub>2</sub>, Ar, and CO<sub>2</sub> at 35° and the diffusivities were computed from

time-lag data. The films exhibited excellent barrier properties resulting

largely from very low gas solubility coeffs. The liquid-crystalline

copolyester (LCP), i.e., the copolyester with the highest II content, exhibits

the best barrier properties. The more hindered motions of the naphthyl unit

restrict penetrant mobility. The decrease in permeability with increased

naphthyl unit content is accompanied by a very dramatic increase in

selectivity between gas pairs. Fractional free volume anal. is used to

correlate the transport properties of the LCP materials and other conventional

polymers. A 2-phase modification of the free volume correlation suggests that

transport may likely occur in a small volume fraction of a less dense boundary

phase.

CC 36-8 (Physical Properties of Synthetic High Polymers)

Section cross-reference(s): 75

IT *Glass temperature and transition*

Heat of fusion and Heat of freezing

Mechanical loss

(of thermotropic liquid-crystalline hydroxybenzoic

acid-hydroxynaphthoic acid copolymers, composition effect on)

IT 81843-52-9, p-Hydroxybenzoic acid-2,6-hydroxynaphthoic acid

copolymer

RL: PROC (Process)

(liquid-crystalline, gas transport properties of, composition effect on)

L126 ANSWER 53 OF 85 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1995:249370 HCAPLUS Full-text

DOCUMENT NUMBER: 123:33983

TITLE: Studies of structure and glass transition in liquid

crystalline copolymers by means of synchrotron

radiation and related methods

Zachmann, H. G.; Thiel, S.

Inst. Technische Makromolekulare Chem., Univ. Hamburg,

Hamburg, 2000/13, Germany

SOURCE: Trends Non-Cryst. Solids, Proc. Int. Workshop

Non-Cryst. Solids, 3rd (1992), Meeting Date 1991,

245-56. Editor(s): Conde, A.; Conde, C. F.; Millen,

M. World Sci.: Singapore, Singapore.

CODEN: 60LDAG

DOCUMENT TYPE: Conference

LANGUAGE: English

AB Binary and ternary systems containing poly(ethylene terephthalate) (PET),

poly(ethylene naphthalene-2,6-dicarboxylate) (PEN) and p-hydroxybenzoic acid

(PHB) were synthesized. These materials are liquid crystalline (LC) if they

contain more than about 30 mol% PHB. The glass transition (T<sub>g</sub>) was studied by

dynamic mech. anal. and the crystallization kinetics by wide angle x-ray

scattering employing synchrotron radiation. The transition LC-isotropic state

was investigated by means of differential scanning calorimetry. It was shown

that in some of the copolymers different fractions of the LC phase (from 0

to 100%) can be frozen-in. Thus it became possible to compare the glass transition, mol. motion and crystallization kinetics of the LC phase to that of the isotropic phase. In the LC phase the glass transition temperature is lower than in the isotropic phase, the mol. motion above T<sub>g</sub> does not include conformation changes, and crystal growth is linear instead of three-dimensional.

CC 36-2 (Physical Properties of Synthetic High Polymers)

Section cross-reference(s): 75

ST polyester liq crystal structure glass temp

IT Chains, chemical

Glass temperature and transition

liquid crystals, polymeric  
(structure and glass transition in binary and ternary  
liquid-crystalline polyester systems studied by synchrotron radiation and related methods)

IT 24968-11-4, Poly(ethylene naphthalene-2,6-dicarboxylate) 25038-59-9,  
Poly(ethylene terephthalate), properties 25230-87-9, Poly(ethylene  
naphthalene-2,6-dicarboxylate) 26099-71-8, p-Hydroxybenzoic acid  
homopolymer, stru 30729-36-3, p-Hydroxybenzoic acid  
homopolymer

RU: PRP (Properties); TEM (Technical or engineered material use); USES  
(Uses)

(structure and glass transition in binary and ternary  
liquid-crystalline polyester systems studied by synchrotron radiation and related methods)

LI26 ANSWER 54 OF 85 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1992:60345 HCAPLUS Full-text

DOCUMENT NUMBER: 116:60345

TITLE: Crystal-liquid crystal transition in single  
crystals of poly(hydroxybenzoic acid)

AUTHOR(S): Liu, J.; Geil, P. H.

CORPORATE SOURCE: Dep. Mater. Sci. Eng., Univ. Illinois, Urbana, IL,

61801, USA

SOURCE: Journal of Macromolecular Science, Physics (1992),

31(2), 163-73

CODEN: JMAPER; ISSN: 0022-2348

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Electron diffraction patterns were obtained from as-polymerized single  
crystals of phase II of poly(hydroxybenzoic acid) as a function of temperature  
into the liquid-crystalline state above 350°. The patterns in the liquid-  
crystalline state consisted of 2 near hexagonal patterns rotated by 16°, with  
streaks connecting the high and low (orthorhombic) patterns over a transition  
temperature range of approx. 50°. Single crystal patterns were also obtained  
from a number of other polymorphs at room temperature before and after heating  
to 400°.

CC 36-2 (Physical Properties of Synthetic High Polymers)

Section cross-reference(s): 75

ST poly(hydroxybenzoic acid) crystal transition; polyester

crystal liq crystal transition

IT Crystal structure

(of poly(hydroxybenzoic acid), crystal-liquid crystal

transition in relation to)

IT Polymer morphology

(of poly(hydroxybenzoic acid), crystal-liquid crystal

transition in single crystals in relation to)

IT 26099-71-8, Poly(oxy-1,4-phenylenecarbonyl) 30729-36-3

RU: PRP (Properties)

(crystal-liquid crystal transition in single crystals of, electron

diffraction in study of)

LI26 ANSWER 55 OF 85 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1991:472648 HCAPLUS Full-text

DOCUMENT NUMBER: 115:72648

TITLE: Dynamic mechanical relaxations in liquid crystal

copolymers in solid phase

AUTHOR(S): Abdul Jawad, S.; Alhaj-Mohammad, M. H.

CORPORATE SOURCE: Phys. Dep., Univ. United Arab Emirates, Al-Ain, United

Arab Emirates

SOURCE: Indian Journal of Technology (1991), 29(2), 67-70

CODEN: IJOTAB; ISSN: 0019-5669

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Three relaxation transitions were observed in nematic 4-hydroxybenzoic acid-  
2-hydroxy-6-naphthoic acid copolymer at -100-150° at approx. 1 Hz. The  
intensities of these relaxations were orientation-dependent. In highly  
oriented samples, each relaxation was more pronounced in shear than in  
tension. In isotropic samples, however, the intensity of each relaxation was  
about the same in both shear and tension. The transition temps. were not  
affected by the differences in the mode of deformation and in the degree of  
orientation.

CC 36-5 (Physical Properties of Synthetic High Polymers)

Section cross-reference(s): 75

IT 135244-27-8

RU: PRP (Properties)

(liquid-crystalline, dynamic mech. relaxations in, in solid phase, effects  
of orientation and composition on)

LI26 ANSWER 56 OF 85 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1990:53100 HCAPLUS Full-text

DOCUMENT NUMBER: 113:13100

TITLE: Liquid-crystalline polyesters bearing optically-active

groups

INVENTOR(S): Iimura, Kazuyoshi; Koide, Naoyuki; Taki, Kazutaka

PATENT ASSIGNEE(S): Tosoh Corp., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.

CODEN: JMKXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO. ---

KIND DATE APPLICATION NO. DATE

JP 02053819 A 19900222 JP 1988-203107 19880817

PRIORITY APPL. INFO.:

AB Title polyesters, with good elasticity and strength and useful in films,

fibers, moldings, etc., contain 10-90 mol% OZC-HMeCO (Z = 2,6-naphthylene

radical; C\* = asym. center) and 90-10 mol% OZICO (Z1 = phenylene, naphthylene,

biphenylene), and have reduced viscosity (mred) (0.5 g/dL in 60:40

PhOH/C2H2Cl4, at 60°) ≥ 0.2 dL/g. A liquid-crystalline polyester was prepared

from (S)-(+)-(6-hydroxy-2-naphthyl)propionic acid and p-hydroxybenzoic acid

having glass-transition temperature 123.4°, liquid-crystallization transition

temperature 170.6°, isotropic transition temp. 246°, and mred 0.67 dL/g, and

extrusion film from which had good flexural strength and modulus.

IC ICM C08G063-06

CC 35-5 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 40

IT 129401-57-EP 129401-58-7P 129426-75-1P

RL: PREP (Preparation)

flexural  
strengths)

L126 ANSWER 57 OF 85 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1990:553397 HCAPLUS Full-text

DOCUMENT NUMBER: 113:153397

TITLE: An optical study of phase transitions of poly(ethylene

terephthalate-co-p-hydroxybenzoic acid) liquid crystal

AUTHOR(S): Sun, Tong; Bhattacharya, Subrata K.; Lenz, Robert W.;

Porter, Roger S. Eng. Dep., Univ. Massachusetts, Amherst,

Polym. Sci. Eng. Dep., Univ. Massachusetts, Amherst,

MA, 01003, USA

SOURCE: Journal of Polymer Science, Part B: Polymer Physics

(1990), 28(10), 1677-84

CODEN: JPBPEM; ISSN: 0887-6266

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The copolyester (I) containing 40 mol % ethylene terephthalate and 60 mol % p-oxybenzoate units was reported to be biphasic in the solid and the liquid states. The reported thermal transitions in the 2 phases, however, were in part contradictory, perhaps partly due to different polymerization conditions. The transitions in each of the 2 phases of I were studied by polarized light microscopy and by light transmission measurements. By light transmission measurements, the 2 phases actually had 2 different glass transition temps. for the onset of segmental motion, consistent with 2 assignable temps. Cold crystallization and melting in each of the 2 different phases was also detected. The results helped clarify the nature of transitions and agreed with the results of dynamic mech. anal. on the same thermotropic liquid crystalline I.

OC 36-3 (Physical Properties of Synthetic High Polymers)

Section cross-reference(s): 75

IT Polyesters, properties

RL: PRP (Properties)

(ethylene glycol-hydroxybenzoic acid-terephthalic acid, phase

transitions in liquid-crystalline, optical study of)

IT 25822-54-2

RL: PRP (Properties)

(phase transitions in liquid-crystalline, optical study of)

L126 ANSWER 58 OF 85 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1990:119528 HCAPLUS Full-text

DOCUMENT NUMBER: 112:119528

TITLE: New polymer synthesis. 39. Thermotropic copolyesters

of 4-hydroxybenzoic acid and 3-chloro-4-hydroxybenzoic

acid

AUTHOR(S): Schwarz, Gert; Kricheldorf, Hans R.

Inst. Tech. Makromol. Chem., Univ. Hamburg, Hamburg,

D-2000/13, Germany

SOURCE: Macromolecules (1990), 23(6), 1568-74

CODEN: MAMOBX; ISSN: 0024-9297

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Coocondensations of 3-chloro-4-acetoxybenzoic acid with 4-acetoxybenzoic acid were conducted at 320° in an inert medium with comonomer molar ratios between 5:1 and 1:10. A second series of copolyesters with a molar composition near 1:1 was prepared under a variety of reaction conditions. All copolyesters

prepared from. acetoxybenzoic acids were **crystalline**, whereas those synthesized from 4-(trimethylsilyloxy)benzoyl chloride were mainly amorphous. DSC and wide-angle x-ray scattering (WAXS) measurements revealed that **crystalline** copolyesters rich in 4-hydroxybenzoic acid possessed a first-order phase transition at temps. between 200 and 340°, which represented a change from orthorhombic to pseudohexagonal chain packing. At temps. around 1:1, WAXS measurements conducted with synchrotron radiation indicated a melting process above 330°. Films were pressed at 390° and thermomech. analyses yielded heat distortion temps. 230-320° for 1:1 copolyesters and approx. 390° for 1:4 copolyesters. The m.p. rose with increasing fraction of 3-chloro-4-hydroxybenzoic acid to >400°. TGA measurements indicated thermal stabilities (5% weight loss in air) up to 500°.

CC 35-5 (Chemistry of Synthetic High Polymers)

ST chloroacetoxybenzoic acid copolymer **crystallinity** mp; oxycenzoate

oxychlorobenzoate polyester thermotropic

IT **Crystal** form

(of hydroxybenzoic acid-chlorohydroxybenzoic acid copolymers, composition effect on, **crystallinity** in relation to)

IT **Crystallinity**

(of hydroxybenzoic acid-chlorohydroxybenzoic acid copolymers, composition effect on, thermal properties in relation to)

IT Chains, chemical

(packing of, of hydroxybenzoic acid-chlorohydroxy **benzoic**

acid copolymers, composition effect on, **crystallinity** in relation

to)

IT Polyesters, preparation

RL: SPN (Synthetic preparation); PREP (Preparation)

(chlorine-containing, hydroxybenzoic acid-based, preparation and

**crystallinity** and phase **transitions** of)

IT 85609-98-9P 90385-55-0P 124921-51-3P, 4-Acetoxybenzoic

acid-3-chloro-4-acetoxybenzoic acid copolymer 124921-52-4P

124921-53-5P, 3-Chloro-4-hydroxybenzoic acid-4-hydroxybenzoic acid

copolymer

RL: SPN (Synthetic preparation); PREP (Preparation)

(preparation and **crystallinity** and phase **transitions** of)

IT 26099-71-8, Poly(oxy-1,4-phenylenecarbonyl) 30729-36-3,

4-Hydroxybenzoic acid homopolymer

RL: USES (Uses)

(wide-angle x-ray scattering patterns of)

L126 ANSWER 59 OF 85 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1989:240720 HCAPLUS Full-text

DOCUMENT NUMBER: 110:240720

TITLE: Benzoate esters as liquid crystals intermediates, and

processes for their preparation

Hirai, Toshihiro; Yoshizawa, Atsushi; Nishiyama, Isa;

Fukumasa, Mitsuo; Shitatori, Nobuyuki; Yokayama,

Akhiisa

PATENT ASSIGNEE(S): Nippon Mining Co., Ltd., Japan

SOURCE: PCT Int. Appl., 123 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.

KIND

DATE

APPLICATION NO.

DATE

WO 8807518

AI

19881006

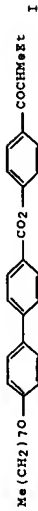
WO 1988-JP334

19880331

W: JP, US  
 RW: AT, BE, CH, DE, FR, GB, IT, LU, NL, SE  
 EP 311692 A1 19890419 EP 1988-902946 19880331  
 EP 311692 B1 19920708  
 R: CH, DE, FR, GB, LI, NL  
 JP 01238557 A 19890922 JP 1988-75895 19880331  
 JP 08025958 B 19960313 JP 1988-502936 19880331  
 JP 2510269 B2 19960626 JP 1991-775737 1991018  
 US 5137653 A 19920811 JP 1987-75918 A 19870331  
 JP 1987-75919 A 19870331  
 JP 1987-96218 A 19870421  
 JP 1987-96219 A 19870421  
 JP 1987-206384 A 19870821  
 JP 1987-293999 A 19871124  
 JP 1987-294000 A 19871124  
 JP 1987-294001 A 19871124  
 JP 1987-294002 A 19871124  
 JP 1987-294003 A 19871124  
 JP 1988-21381 A 19880202  
 US 1988-280721 B1 19880331

PRIORITY APPLN. INFO.:  
 MARPAT 110:240720

OTHER SOURCE(S):  
 GI



AB RA(p-C<sub>6</sub>H<sub>4</sub>)<sub>2</sub>IB(p-C<sub>6</sub>H<sub>4</sub>)<sub>2</sub>MOCH(CH<sub>2</sub>n+1)CH<sub>2</sub>k+1 (R = alkyl; A = bond, O, CO<sub>2</sub>, OCO, OCO<sub>2</sub>, CO; B = CO<sub>2</sub>, OCO; 1, m = 1,2 but 1 = m ≠ 2; h, n ≥ 1 and k > n) are prepared from e.g., ArCOCH(CH<sub>2</sub>n+1)CH<sub>2</sub>k+1 (Ar = p-XC<sub>6</sub>H<sub>4</sub>, p-XC<sub>6</sub>H<sub>4</sub>-p-C<sub>6</sub>H<sub>4</sub>; X = OH, CO<sub>2</sub>H, CH<sub>2</sub>OH). A mixture of 4-[Me(CH<sub>2</sub>)<sub>7</sub>O]C<sub>6</sub>H<sub>4</sub>CO<sub>2</sub>CH<sub>2</sub>n+1 and NaOH in EtOH/H<sub>2</sub>O was refluxed to give 4-[Me(CH<sub>2</sub>)<sub>7</sub>O]C<sub>6</sub>H<sub>4</sub>CO<sub>2</sub>CH<sub>2</sub>n+1, which was converted to the acid chloride, followed by esterification with (+)-4-HOC<sub>6</sub>H<sub>4</sub>CO<sub>2</sub>Me (preparation given) in the presence of pyridine to give a benzoate I. I showed smectic C-to-smectic A and smectic A-to-isotropic transitions at 131.0° and 187.0°, resp.

IC ICM C07C069-773  
 ICS C07C069-80; C07C069-90; C07C069-92; C07C069-94; C07C069-96  
 75-11 (Crystallography and Liquid Crystals)  
 Section cross-reference(s): 25  
 Liquid crystals  
 (benzoic ester derivs.)  
 Optical imaging devices  
 (electro-, liquid-crystal, comps. containing benzoic ester derivs.)

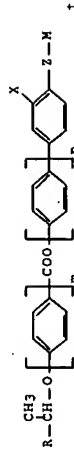
IT 92-66-0, 4-Bromobiphenyl 92-69-3, 4-Hydroxybiphenyl 92-88-6, [1,1'-Biphenyl]-4,4'-diol 99-96-7, 4-Hydroxybenzoic acid, reactions 100-20-9, Terphenylalcohol dichloride 100-66-3, Anisole, reactions 111-87-5, Octylalcohol, reactions 112-13-0, Decanoyl chloride 112-71-0, 764-85-2, Nonanoyl chloride 873-75-6, 4-Bromobenzyl alcohol 1987-50-4, 4-Heptylphenol 3575-31-3, 4-Octylbenzoic acid 7452-59-7, 19812-93-2, 4-Hydroxy-4'-cyanobiphenyl 24460-74-0, Dodecyl chloroformate 26746-34-9, Bromooctane 35179-36-3, 4-Nonanoyloxybenzoic acid 41424-11-7, 4'-Octyloxy-4'-cyanobiphenyl 43152-88-1 52364-73-5, 4'-Octyloxy-4'-cyanobiphenyl 52709-85-0

53676-04-3 57125-50-5 58932-13-1 80698-14-2 120837-26-5  
 120837-27-6 120837-28-7 120837-29-8 120837-30-1 120837-31-2  
 120925-50-0  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (reaction of, in preparation of benzoate liquid crystals)

L126 ANSWER 60 OF 85 HCAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 1989:31857 HCAPLUS Full-text  
 DOCUMENT NUMBER: 110:31857  
 TITLE: Optically active liquid crystal compounds  
 INVENTOR(S): Takehara, Sadao; Fujisawa, Noburu; Ogawa, Hiroshi; Osawa, Masashi; Shoji, Tadao  
 PATENT ASSIGNEE(S): Dainippon Ink and Chemicals, Inc., Japan; Kawamura Physical and Chemical Research Institute  
 SOURCE: Jpn. Kokai Tokkyo Koho, 18 pp.  
 CODEN: JPKXAF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 63175095	A	19880719	JP 1987-5147	19870114
JP 2524341	B2	19960814	JP 1987-5147	19870114

PRIORITY APPLN. INFO.:  
 OTHER SOURCE(S):  
 GI MARPAT 110:31857



AB The title compound is represented by I (R = C<sub>2</sub>-16 alkyl; X = H, F, or Cl; Z = COO, O, OCO, or bond; M = (S)-2-methylbutyl; m = 1 or 2; n = 0 or 1). The direction of twisting of the R-CH(Me)O radical may be inverse to that of the Z-M radical in I. Thus, 4'-(1-methylheptyloxy)biphenyl-4-carboxylic acid (II) was prepared from 4'-hydroxybiphenyl-4-carboxylic acid and (R)-2-octyl-p-toluenesulfonate which was prepared from (R)-2-octanol and p-toluenesulfonyl chloride, 4'-(1-methylheptyloxy)biphenyl-4-carboxyl chloride was prepared from II and reacted with (S)-2-methylbutyl 4-hydroxybenzoate, which was prepared from 4-hydroxybenzoic acid and (S)-2-methylbutyl alc., to form I (R = C<sub>6</sub>H<sub>13</sub>, m = 2, n = 0, X = H, Z = COO). The liquid crystal compound prepared had 42.5 in chiral smectic C-to-smectic A transition.

IC ICM C09K019-20  
 ICS C07C069-92; C07C069-94; G02F001-13  
 75-11 (Crystallography and Liquid Crystals)  
 Section cross-reference(s): 25, 74  
 IT 98-59-9, p-Toluenesulfonyl chloride 99-96-7, 4-Hydroxy benzoic acid, reactions 5978-70-1 6169-06-8, (S)-2-Octanol 26184-62-3 58574-03-1 82380-18-5, 3-Fluoro-4-cyanophenol  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (reaction of, liquid crystal from)



## SN 10/553451 Page 61 of 163

L126 ANSWER 61 OF 85 HCAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 1988:104346 HCAPLUS Full-text  
 DOCUMENT NUMBER: 108:104346  
 TITLE: Depression of the crystal-nematic phase transition in thermotropic liquid-crystal copolyesters  
 AUTHOR(S): George, Eric R.; Porter, Roger S.  
 CORPORATE SOURCE: Polym. Sci. Eng. Dep., Univ. Massachusetts, Amherst, MA, 01003, USA  
 SOURCE: Journal of Polymer Science, Part B: Polymer Physics (1988), 26(1), 83-90  
 CODEN: JPPEM; ISSN: 0887-6266  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 AB The crystal-nematic phase transition of a copolyester consisting of 20 mol% poly(ethylene terephthalate) and 80 mol% p-hydroxybenzoic acid (PHB) was characterized by depression of the crystal-nematic transition by the addition of a liquid crystal diluent. This copolyester contains blocks of crystalline PHB. Its transition behavior was compared with that of a random copolyester with diluent of the same composition. From the extrapolated transition temperature depression data, the heat of transition per mol of PHB was calculated as approx. 1.3 kcal/mol, with an entropy of approx. 2 cal/deg mol. This assumes that only the PHB unit crystallized from the nematic state. The validity of the Flory-Huggins model for this transition point depression was confirmed graphically by comparison with 2 different thermotropic-liquid crystal polyesters. These results may represent the first reported crystal-nematic temp. and heats generated by the dilution method for liquid crystal copolyesters of this type.  
 CC 75-11 (Crystallography and Liquid Crystals)  
 IT Section cross-reference(s): 36, 69  
 IT Entropy  
 IT (of transition, of poly(ethylene terephthalate)-hydroxybenzoic acid copolyester-bis[(methoxycarbonyl)phenyl]terephthalate binary mixts.)  
 IT Heat of transition  
 IT copolyester-bis[(methoxycarbonyl)phenyl]terephthalate binary mixts.)  
 IT 25822-54-2  
 RL: PRE (Properties)  
 RL: (crystal-nematic phase transition and binary mixts.)  
 RL: bis[(methoxycarbonyl)phenyl]terephthalate and

L126 ANSWER 62 OF 85 HCAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 1968:414933 HCAPLUS Full-text  
 DOCUMENT NUMBER: 109:14933  
 TITLE: Liquid-crystalline acrylate polymers  
 INVENTOR(S): Kimura, Kazuyoshi; Koide, Naoyuki; Miyabayashi, Mitsutaka  
 PATENT ASSIGNEE(S): Mitsubishi Petrochemical Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 9 pp.  
 CODEN: JKXXAF  
 PATENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:  
 PATENT NO. \_\_\_\_\_ APPLICATION NO. \_\_\_\_\_ DATE \_\_\_\_\_  
 JP 62232409 A 19871012 JP 1986-75097 19860401  
 PRIORITY APPLN. INFO.: JP 1986-75097 19860401

## SN 10/553451 Page 62 of 163

AB The claimed polymer has structure repeating unit (CH<sub>2</sub>CRCOACGH<sub>4</sub>-4-CO<sub>2</sub>CH<sub>4</sub>-4-alkyl, alkoxy, (alkyl)amino, cyano, NO<sub>2</sub>, CF<sub>3</sub>, CO<sub>2</sub>H, OH, CHO; n = 1-12) and number average mol. weight 2000-500,000. The polymer has wide mesomorphic range and higher glass transition point than room temperature and is useful for nonlinear optical recording materials, optical switches, and second-harmonic generators. Thus, a methacrylate ester, prepared from CH<sub>2</sub>:CMeCO<sub>2</sub>H and 4-HO(CH<sub>2</sub>)<sub>6</sub>CO<sub>2</sub>H, was esterified with 4-HOC<sub>6</sub>H<sub>4</sub>C(CN):CHC<sub>6</sub>H<sub>4</sub>Me-4 and polymerized to give I (A = O(CH<sub>2</sub>)<sub>6</sub>O, R = Z = Me, X = cyano, Y = H) (II; number average mol. weight 8400), which showed glass transition point 106° and nematic-isotropic transition point 218°. A THF solution of II was cast between a pair of Al-deposited glass plates and the resulting film was aligned at 500 V and 225° and cooled to fix the aligned state. The order parameter was 0.4.  
 IC ICM C08F020-40  
 ICS C08F020-40; C09K019-38; G02F001-13  
 CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
 ST Section cross-reference(s): 25, 75  
 IT liq crystal polymer electrooptical material  
 IT Liquid crystals  
 IT (acrylate polymers)  
 IT Optical imaging devices  
 IT (electro-, liquid-crystal, acrylate polymers for)  
 IT Optical materials  
 IT (nonlinear, liquid-crystalline acrylate polymer)  
 IT Recording materials  
 IT (optical, liquid-crystal acrylate polymers for)  
 IT Optical instruments  
 IT (resonators, liquid-crystalline acrylate polymers for)  
 IT Optical instruments  
 IT (switches, liquid-crystalline acrylate polymers for)  
 IT 91652-00-5P  
 RL: RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
 RL: (Preparation and chlorination of, in preparation of liquid-crystalline polymers)  
 IT 114870-99-4P  
 RL: RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
 RL: (Preparation and polymerization of, liquid-crystalline polymers from)  
 IT 114870-98-3P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
 RL: (Preparation and reaction of, with (methacryloyloxyhexyloxy)benzoyl chloride, in preparation of liquid-crystalline polymers)  
 IT 114870-97-2P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
 RL: (Preparation and reaction of, with hydroxycyanostilbenes, in preparation of liquid-crystalline polymers)  
 IT 83883-25-4P  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
 RL: (Preparation and reaction of, with methacrylic acid, in preparation of liquid-crystalline polymers)  
 IT 79-41-4, Methacrylic acid, reactions  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 RL: (reaction of, with (hydroxyhexyloxy)benzoic acid, liquid-crystalline polymers from)



## SN 10/553451 Page 63 of 163

IT 99-96-7, p-Hydroxybenzoic acid, reactions  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (reaction of, with chlorohexyl alc., liquid-crystalline polymers from)

IT 2009-83-8  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (reaction of, with hydroxybenzoic acid, liquid-crystalline polymers from)

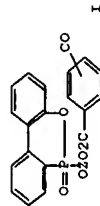
IT 104-87-0, p-Methylbenzaldehyde  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (reaction of, with methoxybenzyl cyanide, liquid-crystalline polymers from)

IT 104-47-2, p-Methoxybenzyl cyanide  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (reaction of, with methylbenzaldehyde, liquid-crystalline polymers from)

L126 ANSWER 63 OF 85 HCAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 107:619080 HCAPLUS Full-text  
 DOCUMENT NUMBER: 107:219080  
 TITLE: Manufacture of aromatic polyester fibers  
 INVENTOR(S): Matsumoto, Tetsuo; Makita, Hirotooshi; Kagawa, Yoshifumi  
 PATENT ASSIGNEE(S): Japan Ester Co., Ltd., Japan  
 SOURCE: Jpn. Kokai Tokkyo Koho, 7 pp.  
 CODEN: JXXXXF  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 62177211	A	19870804	JP 1986-17501	19860129
			JP 1986-17501	19860129

PRIORITY APPLIN. INFO.:  
 GI



AB High-tenacity aromatic polyester fibers are prepared by melt spinning thermotropic liquid-crystal-formable aromatic polyesters containing 5-95 mol% I units (Z = trivalent aromatic group) at draft ratio 25, passing the fibers through gas heated above the softening temperature (19) of the polyester, and finally passing them through gas heated above the glass transition temperature (19) of the polyester. Thus, a 2.5:7.5:2 (mole ratio) mixture of 9,10-dihydro-9-oxa-10-(2',5'-dihydroxyphenyl)phenanthrene 10-oxide (II), 4-hydroxybenzoic anhydride, and acetic anhydride and 1 mol/mol II terephthalic acid were copolymerized to give an aromatic polyester (III). III (Ts 265°; Tg 186°) was spun at 330° and draft ratio 25, passed through gas at 275°, and subsequently passed through gas at 200° to give fibers with tenacity 14.7

## SN 10/553451 Page 64 of 163

g/denier and modulus 268 g/denier, vs. 2.8 g/denier and 205 g/denier, resp., for fibers spun at draft ratio 3.

IC ICM D01F006-62  
 ICS D01F006-84

CC 40-2 (textiles and Fibers)

IT 110870-88-7 110870-92-3 111523-01-4  
 RL: USES (Uses)  
 (fiber, melt spinning of, with high tenacity and modulus, draw ratio and heat-treatment temps. in relation to)

L126 ANSWER 64 OF 85 HCAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 1990:458695 HCAPLUS Full-text  
 DOCUMENT NUMBER: 113:58695  
 TITLE: Process for preparing 4-(2-methylbutyloxy)benzoic acid  
 INVENTOR(S): Kaszynski, Piotr  
 PATENT ASSIGNEE(S): Politechnika Warszawska, Pol.  
 SOURCE: Pol., 2 pp.  
 CODEN: POXXA7  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Polish  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PL 136395	B1	19860228	PL 1982-239548	19821216
			PL 1982-239548	19821216

PRIORITY APPLIN. INFO.:  
 OTHER SOURCE(S): CASREACT 113:58695  
 AB Title acid (I), in enantiomeric or racemic forms, is prepared by reaction of 4-hydroxybenzoate esters with enantiomeric or racemic 2-methylbutyl arylsulfonates in the presence of K<sub>2</sub>CO<sub>3</sub> or Na<sub>2</sub>CO<sub>3</sub> in a boiling solvent at 50-100°C, followed by hydrolysis. I is suitable for electrooptic liquid crystal indicators. Thus, a mixture of crude (S)-2-methylbutyl benzenesulfonate (preparation given), 4-HOC<sub>6</sub>H<sub>4</sub>CO<sub>2</sub>Me, anhydrous K<sub>2</sub>CO<sub>3</sub>, and Me<sub>2</sub>CO was boiled for 5-6 h, filtered, and evaporated. The oily residue was hydrolyzed by NaOH in boiling MeOH, followed by evaporation, and the remaining Na salt in H<sub>2</sub>O was treated with HCl to precipitate crude (+)-I; this was crystallized twice for 45% yield.

IC ICM C07C063-06  
 ICS C09K003-34

CC 25-17 (Benzene, Its Derivatives, and Condensed Benzoid Compounds)  
 Section cross-reference(s): 75

IT Optical imaging devices  
 (electro-, liquid-crystal, (methylbutoxy)benzoic acid enantiomers or racemate)

IT 99-96-7D, esters  
 RL: RCT (Reactant)  
 (etherification of, with methylbutoxy arylsulfonates)

L126 ANSWER 65 OF 85 HCAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 1986:20049 HCAPLUS Full-text  
 DOCUMENT NUMBER: 104:20049  
 TITLE: Structure formation in a rigid chain polymer  
 AUTHOR(S): Butzbach, Guenter D.; Wendorff, Joachim H.; Zimmermann, Hans J.  
 CORPORATE SOURCE: Dtsch. Kunststoff-Inst., Darmstadt, D-6100, Fed. Rep. Ger.  
 SOURCE: Makromolekulare Chemie, Rapid Communications (1985), 6(12), 821-7  
 CODEN: MCRCD4; ISSN: 0173-2803

DOCUMENT TYPE: Journal  
LANGUAGE: English

AB The structure of 58:42 random 4-hydroxybenzoic acid-2-hydroxy-6-naphthoic acid copolymer [81843-52-9] was studied as well as its thermodyn. properties, employing wide-angle x-ray scattering, volumetric, and calorimetric methods. The x-ray diagrams of unoriented molten, quenched, and well-annealed samples showed crystallization taken place rapidly, and oriented samples showed a well-defined long-range positional order in the direction perpendicular to the chain axis and a somewhat less well developed order along the chain direction. The crystallinity obtained from these diagrams was approx. 30% for the unannealed and approx. 60% for the well-annealed samples. Thermoech. anal. showed a glass transition temperature and no volume change during the crystallization or melting. The densities of these samples at room temperature did not depend on the crystallinity.

CC 36-3 (Physical Properties of Synthetic High Polymers)

IT Glass temperature and transition  
(in hydroxynaphthoic acid-hydroxybenzoic acid copolymers)

IT 81843-52-9

RL: PRP (Properties)  
(Structure formation in)

L126 ANSWER 66 OF 85 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1985:204571 HCAPLUS Full-text

DOCUMENT NUMBER: 102:204571

TITLE: Phase transitions in mesophase macromolecules. V.

carboxyl-co-oxy-2,6-naphthaloyl

Cao, Miao Yong; Wunderlich, Bernhard

Dep. Chem., Rensselaer Polytech. Inst., Troy, NY,

12181, USA

SOURCE: Journal of Polymer Science, Polymer Physics Edition

(1985), 23(3), 521-535

CODEN: JPLPAA; ISSN: 0098-1273

DOCUMENT TYPE: Journal

LANGUAGE: English

AB 4-Hydroxybenzoic acid-6-hydroxy-2-naphthoic acid copolymer (I) [81843-52-9] was studied by DSC and polarizing microscopy. Heat capacities for poly(4-hydroxybenzoic acid) [30729-36-3], poly(6-hydroxy-2-naphthoic acid) [94857-18-8], and 3 samples of I were reported at 173-650 K. The heat capacities were additive with composition. I represented an example of a mesophase intermediate between the liquid-crystalline and the condis-crystalline state with a small amount of crystallinity. The disordering transitions (520-620 K) had a eutecticlike phase diagram. The transitions to the isotropic states occurred above the decomposition temps. (600-700 K), and the glass transitions (377-434 K) showed normal changes in heat capacity (31-34 J/K mol) but were broadened to as much as 200 K.

CC 36-3 (Physical Properties of Synthetic High Polymers)

Section cross-reference(s): 75

IT Liquid crystals

(hydroxybenzoate-hydroxynaphthoate copolymers, transition temps. of)

IT Glass temperature and transition

Heat capacity

(of hydroxybenzoic acid and hydroxynaphthoic acid polymers)

IT Polyesters, properties

RL: PRP (Properties)

(hydroxybenzoic acid-hydroxynaphthoic acid, liquid-crystalline transitions of)

IT 26099-71-8 30729-36-3

RL: PRP (Properties)

IT (heat capacity of)

IT 81843-52-9

RL: PRP (Properties)

(liquid-crystalline transitions of)

L126 ANSWER 67 OF 85 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1985:123543 HCAPLUS Full-text

DOCUMENT NUMBER: 102:123543

TITLE: Syntheses and liquid crystalline properties of

homologous series having guaiacyl structure as central

linkage: 4-(4'-n-alkoxy-3'-oxy)benzoic acids

Kasuga, K.; Hatakeyama, H.

Ind. Prod. Res. Inst., Ibaraki, 305, Japan

CORPORATE SOURCE: Cellulose Chemistry and Technology (1984), 18(5),

469-77

CODEN: CECTAH; ISSN: 0576-9787

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 102:123543

AB A homologous series of new liquid crystal compds. having the guaiacyl group were synthesized from vanillin. At first, 4-n-alkoxy-3-methoxybenzoic acids were prepared by the oxidation of 4-n-alkoxy-3-methoxybenzaldehydes obtained from vanillin and n-alkyl bromide. Then the acids were converted to 4-(4'-n-alkoxy-3'-methoxybenzoyl)oxybenzoic acids. New ester carboxylic acids exhibited liquid crystalline properties. Two kinds of mesophases were observed in the series of the compds. with n-alkoxyl groups (n-CH<sub>2</sub>n+1O-) from C12 to C17 but for the other compds. (Cl.apprx.C11,C18), only one kind of mesophase was observed. The result obtained by DSC measurement agreed with that by microscopic anal. The transition temperature to the isotropic liquid decreased with increasing chain length of the n-alkoxyl group.

CC 75-11 (Crystallography and Liquid Crystals)

Section cross-reference(s): 23

ST mesophase alkoxymethoxybenzoyloxybenzoic acid prepri; transition

liq crystal alkoxymethoxybenzoyloxybenzoic acid; benzoic acid

alkoxymethoxybenzoyloxy mesophase

IT 79294-39-6P 79294-40-9P 79294-41-0P 79294-42-1P 79294-43-2P

79294-44-3P 79294-45-4P 79294-46-5P 79294-47-6P 79294-48-7P

95459-56-6P 95459-57-7P 95459-58-8P 95459-59-9P 95459-60-2P

95459-61-3P 95459-62-4P 95459-63-3P

RL: SPN (Synthetic preparation); PREP (Preparation)

(liquid crystals, preparation and transition temps. of)

IT 99-96-7, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)

(reaction of, with alkoxymethoxybenzoyl chloride)

L126 ANSWER 68 OF 85 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1984:7654 HCAPLUS Full-text

DOCUMENT NUMBER: 100:7654

TITLE:

The effect of the molecular structure of epoxy

oligomers based on p-hydroxybenzoic acid on the

properties of polymers

Zaitseva, N. P.; Komarov, B. A.; Kuzaev, A. I.;

Kobal'chuk, Yu. M.; Moshchinskaya, N. K.

USSR

CORPORATE SOURCE: Voprosy Khimii i Khimicheskoi Tekhnologii (1982), 66,

SOURCE: 97-100

CODEN: VKKCAJ; ISSN: 0321-4095

DOCUMENT TYPE: Journal

LANGUAGE: Russian

AB The effect of mol. structure or glass **transition temperature** (T<sub>g</sub>), strength and deformation properties of epichlorohydrin-p- hydroxybenzoic acid copolymer (I) [4476-39-5] cured with n-phenylenediamine [108-43-2] was studied. The T<sub>g</sub>, elongation, elasticity modulus, bending and tensile strength of I depended on the mol. weight, and distribution of mol. weight and functional groups in the epoxy polymer. The physicomech. properties correlated well with the packing d. of the crosslinked epoxy polymer.

CC 37-5 (Plastics Manufacture and Processing)  
IT **Glass temperature and transition**  
(of epichlorohydrin-hydroxybenzoic acid copolymer)  
IT 4476-39-5

RL: USES (Uses)  
(phenylenediamine-cured, physicomech. properties of)

LI26 ANSWER 69 OF 85 HCAPLUS COPYRIGHT 2007 ACS on STN  
ACCESSION NUMBER: 1977:189529 HCAPLUS Full-text  
DOCUMENT NUMBER: 86:189529

TITLE: p-(β-Hydroxyethoxy)benzoic acid

INVENTOR(S): Yoshida, Kiyoshi; Kishiwa, Kozo; Yamaguchi, Katsuhiko; Yanagida, Osami

PATENT ASSIGNEE(S): Mitsubishi Chemical Industries Co., Ltd., Japan  
SOURCE: Jpn. Tokkyo Koho, 5 pp.  
CODEN: JMXAD

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 51044937	B	19761201	JP 1967-17671	19670323
PRIORITY APPLIN. INFO.:			JP 1967-17671	19670323
AB				

p-HOCH<sub>2</sub>CH<sub>2</sub>OC<sub>6</sub>H<sub>4</sub>CO<sub>2</sub>H (I) crystals were continuously manufactured by acid precipitation of aqueous I alkali salt solution with HCl or H<sub>2</sub>SO<sub>4</sub>, during which the aqueous solution and the acid were continuously introduced into the reactor, the pH was kept at 3.0-4.0 and the temperature 65-85° in the reactor, and the acidified solution containing I crystals was continuously collected. A reactor diagram was given.

IC C07C065-02

CC 25-17 (Noncondensed Aromatic Compounds)

IT 99-96-7, reactions  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(reaction of, with ethylene oxide)

LI26 ANSWER 70 OF 85 HCAPLUS COPYRIGHT 2007 ACS on STN  
ACCESSION NUMBER: 1976:114472 HCAPLUS Full-text  
DOCUMENT NUMBER: 84:114472

TITLE: Influence of molecular structure on mixed mesomorphism

in some binary systems

Dave, J. S.; Vasanth, K. L.

CORPORATE SOURCE: Chem. Dep., Maharaja Sayajirao Univ. Baroda, Baroda, India

AUTHOR(S):

SOURCE: Liq. Cryst., Proc. Int. Conf. (1975), Meeting Date

1973, 415-25. Editor(s): Chandrasekhar, S. Ind.

Acad. Sci.: Bangalore, India.

CODEN: 32KEAH

CONFERENCE

LANGUAGE: English

AB The mixed mesomorphism of binary systems of p-butoxybenzoic acid or p-acetoxybenzal-p'-phenetidine nematic liquid crystals with nonmesomorphic Schiff bases and substituted benzoic acids as solutes was studied. The **transition temps.** of the systems were determined in systems where the solvent and solute mols. are basically similar in shape, size, and structure and have polar groups, mixed liquid-crystal formation is greatly facilitated. The geometry of the Schiff bases prevents close packing with p-n-butoxybenzoic acid and steep **transition** lines are observed. The effect of different substituents of nonmesomorphic benzoic acids on liquid-crystal formation was determined. Results for the 2 systems with p-n-butoxybenzoic acid and p-acetoxybenzal-p'-phenetidine are compared and discussed in terms of the mol. structures.

CC 75-4 (Crystallization and Crystal Structure)

ST liq crystal mixt mol structure; butoxybenzoic acid mesomorphic mixt; acetoxybenzalphenetidine mesomorphic mixt; benzoic acid liq crystal; Schiff base liq crystal; phenetidine deriv liq crystal;

IT 62-23-7 74-11-3 99-94-5 99-96-7, properties 100-09-4

586-76-5 619-58-9 619-86-3 1749-08-2 15484-92-1 15484-93-2  
15485-22-0 15485-31-1  
RL: PRP (Properties)  
(liquid crystal mixture containing, effect of mol. structure on properties of)

LI26 ANSWER 71 OF 85 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1976:37453 HCAPLUS Full-text

DOCUMENT NUMBER: 84:37453

TITLE: Nematic mixed liquid crystals in some binary systems

AUTHOR(S): Vasanth, K. L.

CORPORATE SOURCE: Dep. Chem., P. S. G. Coll. Technol., Coimbatore, India

TECHNOLOGY (Coimbatore, India) (1975), 23, 9-13

CODEN: TGVNEN; ISSN: 0492-519X

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Slopes of **transition** lines, solid-mesomorphic **trans.**, nematic liquid-isotropic liquid **transition temp.**, triple points, and eutectics are given for mixts. of p-n-butoxybenzoic acid or p-acetoxybenzal-p-phenetidine with p-nitrobenzal-p-phenetidine, p-anisal-p-anisidine, p-chlorobenzal-p-phenetidine, p-dimethylaminobenzal-p-phenetidine, p-anisal-p-chloroaniline, p-methoxybenzoic acid. Liquid **crystals** with benzoic acid derivs. were also studied.

CC 75-4 (Crystallization and Crystal Structure)

ST liq crystal nematic mixt; phase diagram binary nematic; **transition**

temp binary nematic; butoxybenzoic acid liq crystal;

acetoxybenzalphenetidine liq crystal mixt; phenetidine liq crystal mixt;

benzal deriv liq crystal

IT 1498-96-0

RL: PRP (Properties)

(nematic liquid **crystal** mixture of, with benzoic acids

or Schiff bases)

IT 62-23-7 74-11-3 99-94-5 99-96-7, properties 586-76-5

619-58-9

RL: PRP (Properties)

(nematic liquid crystal mixture of, with butoxybenzoic acid)

LI26 ANSWER 72 OF 85 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1957:12636 HCAPLUS Full-text

DOCUMENT NUMBER: 51:12636

ORIGINAL REFERENCE NO.: 51:2644h-1,2645a

TITLE: Action of trimethylgalloylazide on hydroxybenzoic acids and their methyl esters

AUTHOR(S):  
CORPORATE SOURCE:

Pepe, Rodolfo O.  
Univ. nac. Tucuman, Argent.  
Anales de la Asociacion Quimica Argentina (1921-2001)  
(1956), 44, 5-10  
CODEN: AAQAAE; ISSN: 0365-0375

DOCUMENT TYPE:

Journal

LANGUAGE: German  
AB cf. C.A. 24, 4285. m-HOC6H4CO2H (1.4 g.) in 8 ml. 3N NaOH and 2.4 g. tri-O-methylgalloylaze in 17 ml. Me2CO mixed, then stirred 2 hrs., water and 8 ml. 3N HCl added, and the **precipitate** filtered off and washed with water yielded 2.7 g. m-(tri-O-methylgalloyloxy)benzoic acid (I), colorless **crystals** from EtOH, m. 185°. Similarly 1.52 g. p-HOC6H4CO2Me, in 5 ml. Me2CO yielded 2.2 g. p-[3,4,5-(MeO)3C6H2CO2]C6H4CO2Me (II) m. 113° (from MeOH). II is also obtained (64%) by heating 1.66 g. p-[3,4,5-(MeO)3C6H2CO2]C6H4CO2H with 75 ml. MeOH and 1.8 ml. H2SO4. Similarly is obtained the Me ester, m. 143.5°, of I. o-[3,4,5-(MeO)3C6H2CO2]C6H4CO2Me m. 139°.

CC 10 (Organic Chemistry)

IT 99-06-9, Benzoic acid, m-hydroxy- 99-96-7, Benzoic acid, "

p-hydroxy- 16534-78-4, Benzoic acid, 2,3,6-trihydroxy- (esters)

L126 ANSWER 73 OF 85 HCAPLUS COPYRIGHT 2007 ACS on SYN

ACCESSION NUMBER: 1925:19165 HCAPLUS FULL-text

DOCUMENT NUMBER: 19:19165

ORIGINAL REFERENCE NO.: 19:24781.2479a-1

TITLE: Replacement of reactive hydrogen atoms in sugars, hydroxy and amino acids by the triphenylmethyl residue  
Helfrich, Burkhardt; Moog, Ludwig; Junger, Adolf  
Berichte der Deutschen Chemischen Gesellschaft [Abteilung] B: Abhandlungen (1925), 58B, 872-86  
CODEN: BDCBAD; ISSN: 0365-9488

DOCUMENT TYPE:

Unavailable

LANGUAGE: CASREACT 19:19165

OTHER SOURCE(S): cf. C. A. 19, 250. The preparation of Ph8C ethers has been extended to other sugars besides  $\alpha$ -Me glucoside. The crystalline compound (I) obtained from d-glucose readily yields a tetra-A c derivative (II) different from that obtained by treating with Ac2O the original CSHN solution of glucose and Ph3CCl without first isolating the I. Both acetates give acetodibromoglucose with PBr5, whence it is concluded that they are deriva. of 6-triphenylmethyl- $\alpha$ - and  $\beta$ -d-glucose, resp., an assumption in harmony with the fact that the crystalline I shows (decreasing) mutarotation. The Ph3C residue is very sensitive not only to acids but, unlike all other ethers of Ph3COH hitherto prepared, to alkalis in MeOH also. I and the corresponding galactose derivative (III) are soluble in many organic solvents and are readily converted back into the free sugars. A triphenylmethylmonoacetone-d-glucose was prepared and isolated as the di-Bz derivative (IV) (not yet definitely shown to be homogeneous). Triphenyl-d-gluconic phenylhydrazide (V) and Ph3C deriva. of various HQ and NH2 compds. were likewise obtained. In the preparation of these ethers there is often formed as by-product a pure white crystalline substance (VI) which is apparently an addition product of Ph3COH and HCl (or Ph3CCl and H2O). I (30 g., together with 5 g. VI, from 36 g. glucose in 180 cc. absolute CSHN and 58 g. Ph3CCl kept 1-2 days at room temperature), needles with 2 EtOH, begins to sinter 45°, m. 57-8°; anhydrous, it begins to sinter 60°, softens more and more and finally evolves gas at 100°, [d]D22 in CSHN 59.6° (initial), 38.0° (final, after 90 hrs.), reduces hot Fehling solution; hydrolyzed by HCl in solution (MeOH, Et2O, CHCl3) or by 0.5% alc. NaOH to glucose and Ph3COH. III (yield, about 30%), contains 1 mol. EtOH when air-dry and loses only 0.5 mol. even after several days under 2 mm.

at 67° over P2O5, m. (air-dry) 73-5°, [d]D22 in CSHN 0.58° (initial), 2.24° (final after 20 hrs.); the dried product begins to sinter 76° and de-comps. about 108°. Tetra-A c derivative of I, m. 129-31°, [d]D27 97.8°, [d]D22 97.4° (CSH5N);  $\beta$ -isomer (yield, about 27%), m. 163-4°, [d]D19 44.8°, [d]D28 45.3° (CSH5N). IV, needles m. sometimes 78-9°, sometimes 97-9°, [d]D21 in CSH5N 4.5° and -4.0°, resp., reduces Fehling solution only after hydrolysis with acids. V (yield, about 65%), leaflets with 2.5 H2O, sinters about 93°, de-comps. 101°, [d]D26 in CSH5N 3.0° (air-dry), 4.8° (anhydrous) hydrolyzed by 1% HCl in MeOH in 20 hrs. at room temperature and by boiling 5% alc. KOH in 30 min. to the K salt (yield, 71%), de-comps. 198-9°, [d]D24 7.7° (Me2CO). Tetra-Bz derivative of V (yield, 60%), sinters 168°, m. 173°, [d]D18 36.2° (CSH5N), rapidly loses the Ph3C residue in MeOH or CHCl3 containing HCl. p-Hydroxybenzoic anhydride mono-(triphenylmethyl) ether(2), C33H24O5, (0.6 g. from 2 g. p-HOC6H4CO2H and 4 g. Ph3CCl in boiling CSH5N), m. 219-20°, mol. weight in boiling (CH2Br)2 484-8. Et  $\beta$ -triphenylmethoxypropionate (yield, 48%), m. 104-5°, 1% HCl in MeOH hydrolyzes both the ether and ester, alc. KOH only the ester grouping, giving 90% of the free acid, m. 163-4°, whose Na salt m. 258-9°. PhOCPh3 (yield, 28%), m. 103°. Triphenylcarbinol-HCl (VI), best obtained from Ph3CCl in CSH5N with 1 mol. H2O, m. 174°, smoothly yields Ph3COEt on recrystn. from EtOH and in the air gradually de-comps. into Ph3COH and HCl. Bis(triphenylmethyl)urea (2.8 g. from 0.5 g. urea and 4.7 g. Ph3CCl in CSH5N on the H2O bath), needles with 2EtOH, m. 245°, unchanged by 3 hrs. boiling with 10% alc. KOH but hydrolyzed by boiling 0.5 hr. with 2% HCl in MeOH. Triphenylmethurea, from equivalent amts. of Ph3CCl and CS(NH2)2 in hot CSH5N, m. 222° (decomposition). Et N-triphenylmethylglyccoll (yield, 61%), m. 114°, loses both the ether and ester groups on boiling 1 hr. with 5% alc. KOH but 2% alc. KOH after 2 days at room temperature yields the free acid (66%). m. 168°, de-comps. above 180°. Loses the Ph3C group when boiled 0.5 hr. with 10% alc. KOH; Na salt, needles with about 7 H2O, m. below 100°, solidifies and m. again 265-6°; O<sub>2</sub> salt, lilac crystals with 3 MeOH, begins to become pale about 100°, turns green and de-comps. about 159°. Et N-triphenylmethyl-d-alanine (yield, 43%), m. 100°; both the ether and ester groupings are hydrolyzed after 2 hrs. boiling with 5% alc. KOH but after 15 min. is obtained the free acid, crystals with 0.5 EtOH; Na salt, hygroscopic. Et N-triphenylmethylglycylglycine (yield, 54%), m. 161°; free acid (yield, 60%), m. 180°; Na salt, becomes discolored around 250°, does not m. 300°. N-Triphenylmethyldiphenylamine, m. 240°, mol. weight in boiling PhMe 403-64; the Ph3C residue cannot be split off with either acids or alkalis; concentrated H2SO4 dissolves it partially and slowly but without hydrolysis.

CC 10 (Organic Chemistry)

IT 10028-44-1P, d-Glucose, tetraacetyl-6-triphenylmethyl-,  $\alpha$ -1327-85-0P, Methylamine, N,N, $\alpha$ -pentaphenyl- 37074-90-1P, d-Glucose, tetraacetyl-6-triphenylmethyl-,  $\beta$ - 54325-28-9P, d-Glucose, 6-triphenylmethyl-,  $\alpha$ - 76758-01-5P, Urea, thiotriphenylmethyl- 857214-58-5P, Carbinol, triphenyl-, -HCl 861307-11-1P, Benzoic acid, p-hydroxy-, anhydride with  $\alpha$ -triphenylanilic acid 861307-11-1P, Anilic acid,  $\alpha$ -triphenyl-, anhydride with p-hydroxybenzoic acid 861307-11-1P, Benzoic anhydride, p-hydroxy-p'-triphenylmethoxy- 894765-68-5P, d-Glucose, 6-triphenylmethyl-,  $\beta$ -RL: PREP (Preparation) (Preparation of)

## STN

ACCESSION NUMBER: 2003:264932 BIOSIS Full-text  
 DOCUMENT NUMBER: PREV200300264932  
 TITLE: Granules of 2-hydroxynaphthalene-3-carboxylic acid and method for preparing the same.

AUTHOR(S): Ueno, Ryuzo [Inventor], Reprint Author];  
 Kitayama, Masaya [Inventor]; Isumichi,  
 Nobutaka [Inventor]; Nara, Syungo [Inventor];  
 Kittaka, Masaharu [Inventor]

CORPORATE SOURCE: Nishinomiya, Japan  
 ASHIGAKE: Kabushiki Kaisha Ueno Selyako Oyo Kenkyujo,  
 Osaka, Japan

PATENT INFORMATION: US 6562998 20030513  
 SOURCE: Official Gazette of the United States Patent and Trademark  
 Office Patents, (May 13 2003) Vol. 1270, No. 2.  
<http://www.uspto.gov/web/menu/patdata.html>. e-file.  
 ISSN: 0098-1133 (ISSN print).

## DOCUMENT TYPE:

Patent

English

## ENTRY DATE:

Entered STN: 4 Jun 2003

Last Updated on STN: 4 Jun 2003

AB Granular product of 2-hydroxynaphthalene-3-carboxylic acid with well-suppressed dusting tendency, and process for preparing the same is provided.  
 Granular product of 2-hydroxynaphthalene-3-carboxylic acid having an average particle size of 150 μm or more and a hardness of 70-3000 g, and a process for preparing the same comprising the steps of dry compressing powdery 2-hydroxynaphthalene-3-carboxylic acid to give compressed material and pulverizing and classifying the same.

L126 ANSWER 75 OF 85 WPX COPYRIGHT 2007 THE THOMSON CORP on STN

AN 2006-090894 [09] WPX Full-text

INC C2006-032933 [09]

TI Pharmaceutical co-crystal for pharmaceutical composition to treat, e.g. epilepsy, includes active pharmaceutical ingredient from, e.g. carbamazepine, and co-crystal former from, e.g. 4-aminobenzoic acid

DC B05

IN BOURGHOI HICKEY M; MCMAHON J; PETERSON M; SHATTOCK T; ZAMOROTKO M J

PA (TRAN-N) TRANSFORM PHARM INC

CYC 109

PI WO 2006007448 A2 20060119 (200609)\* EN 149[20]

ADT WO 2006007448 A2 WO 2005-US21662 20050616

PRAI US 2004-628701P 20041117

US 2004-580661P 20040617

US 2004-585808P 20040706

US 2004-621485P 20041022

IPC1 A61K0038-17 [I,A]

AB WO 2006007448 A2 UPAB: 20060206

NOVELTY - A pharmaceutical co-crystal comprises an active pharmaceutical ingredient (API) from carbamazepine, glyburide, fluconazole, omeprazole, piracetam, or stavudine; and a co-crystal former from 4-aminobenzoic acid, TRIS, maleic acid, gentisic acid, 4-hydroxybenzoic acid, acetylsalicylic acid, cinnamic acid, melamine, or 2-aminopyridine.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for:

(A) a pharmaceutical composition comprising the inventive

pharmaceutical co-crystal, a diluent, excipient, or carrier;

(B) a method for treating a subject with epilepsy, trigeminal neuralgia, memory loss, inflammation, or another condition where carbamazepine, omeprazole, glyburide, piracetam, stavudine, or gentisic acid is an effective active pharmaceutical for said condition, comprising administering to the subject (human) a therapeutically-effective amount of a co-crystal of carbamazepine, omeprazole, glyburide, piracetam, stavudine, or gentisic acid; and

(C) a process for preparing a pharmaceutical co-crystal comprising an API and a co-crystal former, comprising providing an appropriate solvent and the API and the co-crystal former that is a solid at room temperature; grinding the API, the co-crystal former, and a small amount of the appropriate solvent, to form a solid phase; isolating co-crystals; and incorporating the co-crystals into a pharmaceutical composition.

ACTIVITY - Anticonvulsant; Nootropic; Antiinflammatory.

MECHANISM OF ACTION - None given.

USE - For a pharmaceutical composition used in treating a subject with epilepsy, trigeminal neuralgia, memory loss, inflammation, or another condition (claimed).

ADVANTAGE - The invention improves the properties of active pharmaceutical agents and is capable of co-crystallizing from a solid or solution phase under crystallization conditions.

DESCRIPTION OF DRAWINGS - The figure shows a spectrum for

stavudine:melamine co-crystal.

MC CPT: B04-B03D; B06-D12; B07-H; B10-A13D; B10-B02A; B10-B03B; B10-C02;

B10-C03; B10-C04C; B12-M1H; B14-C01; B14-C03; B14-J01A4; B14-J07

TECH

PHARMACEUTICALS - Preferred Component: The co-crystal is characterized by single-crystal x-ray data, where the co-crystal is a carbamazepine:4-aminobenzoic acid co-crystal. It is characterized by a melting point, where the co-crystal is a carbamazepine:4-aminobenzoic acid co-crystal and the melting point is 185-187degreesC. It can be carbamazepine:4-aminobenzoic acid:water co-crystal and the melting point is 143degreesC. It can be fluconazole: maleate: maleic acid co-crystal. The co-crystal is a fluconazole: maleate: maleic acid co-crystal and the melting point is 84degreesC. It is glyburide:TRIS co-crystal and characterized by a powder x-ray diffraction pattern comprising peaks expressed in terms of 2-theta angles. It is a glyburide:TRIS co-crystal and the x-ray diffraction pattern comprises peaks at 8.19, 15.43, and 19.07degrees; a glyburide:TRIS co-crystal and the x-ray diffraction pattern comprises peaks at 13.99, 22.01, and 26.41degrees; a glyburide:TRIS co-crystal and the x-ray diffraction pattern comprises peaks at 5.29, 8.19, 12.23, 13.99, 15.43, 19.07, and 22.01degrees; a glyburide:TRIS co-crystal and the x-ray diffraction pattern comprises peaks at 8.19 and 19.07degrees; a glyburide:TRIS co-crystal and the x-ray diffraction pattern comprises peaks at 8.19 and 15.43degrees; a glyburide:TRIS co-crystal and the x-ray diffraction pattern comprises peaks at 5.29 and 23.21degrees; a glyburide:TRIS co-crystal and the x-ray diffraction pattern comprises a peak at 8.19degrees; a glyburide:TRIS co-crystal and the x-ray diffraction pattern comprises a peak at 5.29degrees; a glyburide:TRIS co-crystal and the x-ray diffraction pattern comprises a peak at 19.07degrees; a glyburide:TRIS co-crystal and the x-ray diffraction pattern comprises a peak at 22.01degrees; or a glyburide:TRIS co-crystal and the x-ray diffraction pattern is as shown in Figure 3. It is characterized by a DSC thermogram, where the co-crystal is a glyburide:TRIS co-crystal and the DSC thermogram comprises an endothermic transition at 140degreesC; or by a TGA thermogram, where the co-crystal is a glyburide:TRIS co-crystal and the TGA thermogram comprises a weight loss of 20-150-200degreesC. The co-crystal is a piracetam:gentisic acid



The phenyl benzamide compound does not contain heavy metals, hence prevents environmental pollution.

MC CFI: A12-L05C2; E10-C04C; E10-D03D; G06-G05

TECH EPI: S06-A04C

INORGANIC CHEMISTRY - Preferred Compounds: The coloring agent is a magnetic substance or non-magnetic substance. The magnetic substance is magnetic iron oxide.

ORGANIC CHEMISTRY - Preferred Composition: The phenyl benzamide compound is preferably a compound of formula (III).

X1 = fluorine atom, fluorine-substituted alkyl group or

fluorine-substituted alkoxy group; and

R = hydrogen atom, carboxymethyl group or 1-carboxyethyl group.

The toner contains 0.1-10 mass parts, preferably 0.5-5 mass parts of phenyl benzamide compound which is added internally to the toner particle, and 10-200 mass parts of magnetic coloring agent or 0.1-20 mass parts of non-magnetic coloring agent, and further contains 0.2-20 mass parts of wax with respect to 100 mass parts of binder resin.

POLYMERS - Preferred Resins: The toner of the two component-type developing agent contains styrene acrylic-type resin as binder resin. The carrier of two component-type developing agent is a resin-coated carrier. The resin-coated carrier consists of a carrier core paper coated with resin(s) chosen from polytetrafluoroethylene, monochloro trifluoroethylene polymer, polyvinylidene fluoride, silicone resin, polyester resin, styrene resin, acrylic-type resin, polyamide, polyvinyl butyral and amino acrylate resin.

Preferred Properties: The electric charge control agent has volume mean particle diameter of 0.1-20 microns. The binder resin has acid value of 1-100 mg KOH/g, preferably 0.1-50 mg KOH/g, and glass transition temperature of 35-80 degrees C. The toner has volume mean particle diameter of 2-15 microns, preferably 3-12 microns. The wax has melting point of 70-140 degrees C.

L126 ANSWER 77 OF 85 WP1X COPYRIGHT 2007 THE THOMSON CORP on STN

AN 2003-040830 [03] WP1X Full-text

DNC Z2003-009809 [03]

DNC Z2003-031981 [03]

TI Particulate para-hydroxybenzoic acid or ester, useful for liquid crystal polyesters and as mold preventer for make-up, is prepared by molding a dry powder of the acid or ester, crushing and classifying

DC A41; D21; E14; L03; U11; U14

IN IZU-MICHI N; IZUMICHI N; KIKKO M;

KITAKA M; KITAYAMA M; KITAKA M; SENGHI N;

UENO R

PA (IZUMI-I) IZUMICHI N; (KITA-I) KITAYAMA M; (KIT-I) KITAKA M; (UENO-I) UENO R; (UENS-C) UENO SEIYAKU OYO KENKYUSHO KK

CYC 30

PI WO 2002085835 A1 20021031 (200303)\* JA 23[0]

JP 2002316969 A 20021031 (200304) JA 11

BR 2002005089 A 20030318 (200325) PT

KR 2003019438 A 20030306 (200345) KO

US 20030160205 A1 20030828 (200357) EN

EP 1380563 B2 20040114 (200410) EN

US 6673962 B2 20040106 (200411) EN

CN 1463265 A 20031224 (200421) ZH

TW 583020 A 20040411 (200468) ZH

IN 2002002158 P4 20050225 (200546) EN

KX 2003000620 A1 20040801 (200548) ES

KX 229742 B 20050805 (200604) ES

CN 1246285 C 20060322 (200660) ZH

ADT WO 2002085835 A1 WO 2002-JP3851 20020418; JP 2002316969 A JP 2001-122933 20010420; IN 2002002158 P4 WO 2002-JP3851; BR 2002005089 A BR 2002-5089 20020418; CN 1463265 A CN 2002-802094 20020418; EP 1380563 A1 EP

2002-720482 20020418; TW 583020 A TW 2002-107917 20020418; BR 2002005089 A

WO 2002-JP3851 20020418; US 20030160205 A1 WO 2002-JP3851 20020418; EP

1380563 A1 WO 2002-JP3851 20020418; US 6673962 B2 WO 2002-JP3851 20020418;

MX 2003000620 A1 WO 2002-JP3851 20020418; MX 229742 B WO 2002-JP3851

20020418; KR 2003019438 A KR 2002-71217 20021217; US 20030160205 A1 US

2002-311633 20021218; US 6673962 B2 US 2002-311633 20021218; IN 2002002158

P4 IN 2002-CN2158 20021226; MX 2003000620 A1 MX 2003-820 20030121; MX

229742 B MX 2003-620 20030121; CN 1246285 C CN 2002-802094 20020418

US 6673962 B2 Based on WO 2002085835 A; BR 2002005089 A Based on WO

2002085835 A; EP 1380563 A1 Based on WO 2002085835 A; MX 2003000620 A1

Based on WO 2002085835 A; MX 229742 B Based on WO 2002085835 A

PRAI JP 2001-122933 20010420

IC ICN B01J002-22; C07C065-03; C07C069-84; C07C069-88

ICS B01J002-00; C07C051-43; C07C067-52

IPC1 C07C065-00 [I,C]; C07C065-03 [I,A]; C07C069-00 [I,C]; C07C069-84 [I,A]

IPCR C07C065-00 [I,C]; C07C065-03 [I,A]; C07C069-00 [I,C]; C07C069-88 [I,A]

AB NOVELTY - Particulate para-hydroxybenzoic acid or para-hydroxybenzoic acid

ester having average particle diameter of at least 150 nm and hardness 10-

3000 g, is new.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for

production of the particulate, comprising dry compacting a powder of para-

hydroxybenzoic acid or ester to form a molding, pulverizing and classifying.

USE - Raw material for macromolecular materials, in particular for

liquid crystal polyesters, and as a mold preventer for make-up and industrial

use.

ADVANTAGE - The particulate exhibits remarkably inhibited flying off

and caking, and has good handling, such as during transportation, when there

is no return to the original fine particles. Environmental pollution and the

effect on the human body are greatly reduced. The polyesters have high

strength and high elastic modulus.

CPI: A01-E13; A01-E14; D08-B01; E10-C03; E11-R02A; L03-D01D1

EPI: U11-A03A; U14-K01

TECH

ORGANIC CHEMISTRY - Preferred Particulate: The proportion of particles

which pass through 74 mm mesh is at most 15 wt.% of the total particles.

The powdering ratio is at most 3%. The angle of repose is 30-50degrees.

The particulate has 0.5-0.85 g/cc slack specific wt. (Wsl), 0.55-0.9 g/cc

solid specific wt. (Ws) and at most 10% compaction degree

((Ws-Wsl)/Ws)x100. The particulate is obtained by dry compacting

(especially at 0.2-2.0 ton/cm pressure) a powder of para-hydroxybenzoic

acid or ester to form a molding, pulverizing and classifying.

Preferred Material: The para-hydroxybenzoic acid ester powder contains

at most 20% water.

L126 ANSWER 78 OF 85 WP1X COPYRIGHT 2007 THE THOMSON CORP on STN

AN 2002-371855 [40] WP1X Full-text

DNC C2002-105215 [40]

TI Pharmaceutical modified release formulation comprises active substance and

modified water-soluble polysaccharide

DC A11; A96; B05; B07

IN EKLUND M; LOFROTH J; SKANTZE U

PA (ASTR-C) ASTRAZENECA AB; (ASTR-C) ASTRAZENECA UK LTD; (EKLU-I) EKLUND M;

(LOFR-I) LOFROTH J; (SKAN-I) SKANTZE U

CYC 96

PI WO 2002019390 A1 20020314 (200240)\* EN 40[0]

AU 2001084189 A 20020322 (200251) EN



EP 1322293 A1 20030702 (200344) EN  
 US 20040022850 A1 20040205 (200411) EN  
 JP 2004508322 W 20040318 (200420) JA 68 A61K047-36  
 EP 1322293 A1 20060927 (200663) EN  
 DE 60123447 E 20061109 (200675) DE  
 WO 2002019990 A1 EP 2001-963156 20010830; AU 2001084189 A AU 2001-84189  
 20010830; EP 1322293 A1 EP 2001-963156 20010830; EP 1322293 B1 EP  
 20010830; EP 1322293 B1 WO 2001-963156 20010830; JP 2004508322 W WO 2001-963156  
 20040022850 A1 WO 2001-963156 20010830; JP 2004508322 W WO 2001-963156  
 20010830; EP 1322293 B1 WO 2001-963156 20010830; JP 2004508322 W JP  
 2002-524475 20010830; US 20040022850 A1 US 2003-362261 20030714; DE  
 60123447 E DE 2001-623447 20010830; DE 60123447 E EP 2001-963156 20010830;  
 DE 60123447 E WO 2001-963156 20010830  
 FDT AU 2001084189 A Based on WO 2002019990 A; EP 1322293 A1 Based on  
 WO 2002019990 A; JP 2004508322 W Based on WO 2002019990 A; EP  
 1322293 B1 Based on WO 2002019990 A; DE 60123447 E Based on EP  
 1322293 A; DE 60123447 E Based on WO 2002019990 A  
 PRAI SE 2000-3125 20000905  
 IC ICM A61K047-36  
 ICS A61K031-138; A61K031-198; A61K031-397; A61K031-404; A61K031-4422;  
 A61K045-00; A61K047-36; A61K009-16; A61K009-20  
 IPCR A61K009-20 [I,A]; A61K0031-138 [I,C]; A61K0031-185 [I,C]; A61K0031-198  
 [I,A]; A61K0031-397 [I,A]; A61K0031-397 [I,C]; A61K0031-403 [I,C];  
 A61K0031-404 [I,A]; A61K0031-4422 [I,A]; A61K0031-4422 [I,C]; A61K045-00  
 [I,A]; A61K045-00 [I,C]; A61K047-36 [I,A]; A61K047-36 [I,C];  
 A61K047-38 [I,A]; A61K047-38 [I,C]; A61K009-16 [I,A]; A61K009-16  
 [I,C]; A61K009-20 [I,A]; A61K009-20 [I,C]; A61K009-22 [I,A];  
 A61K009-22 [I,C]  
 AB WO 2002019990 A1 UPAB: 20050902  
 NOVELTY - Pharmaceutical modified release formulation comprises a  
 pharmacologically active substance and a modified water-soluble (ws)  
 polysaccharide (PS) obtained by:  
 (a) forming a **precipitate** of a wSPS by contacting a solution of the PS  
 with a solvent in which the PS is poorly soluble or insoluble; or  
 (b) milling a wSPS.

USE - Used for formulating active agents such as butyl **paraben** (p-  
**hydroxybenzoic acid**), the sodium salt of the HMG-CoA reductase inhibitor  
 fluvastatin, the thrombin inhibitor as in WO97/23499, glycine, N-(1-  
 cyclohexyl-2-((4-hydroxyimino)aminomethyl)-  
 phenyl(methylamino)carbonyl)-1-azetidinyl)-2-oxoethyl)-, ethyl ester, (S-  
 (Rasterisk, Sasterisk)), the beta-blocker metoprolol and felodipine.

ADVANTAGE - The modified release formulation has good compaction  
 properties and a high tablet hardness. Many of the modified PSs are not  
 sensitive to surface active agents (e.g. bile salts and lipids) or increased  
 ionic strengths due to the presence of salts, present either as part of the  
 formulation or in an external dissolution medium (e.g., the gastrointestinal  
 contents).

CPI: A03-A00A; A12-V01; B04-C02; B04-C02A2; B04-C02D; B06-D01; B07-D01;  
 B07-D04D; B10-B03B; B12-M10; B12-M1B

TECH

POLYMERS - Preferred Components: The wSPS comprises hydroxyethylcellulose,  
 locust bean gum, tragacanth gum or guar gum. The modified wSPS is obtained  
 by forming a **precipitate** of a wSPS by contacting a solution of  
 the PS in a first solvent with a solvent in which the PS is poorly soluble  
 or insoluble. The wSPS has a tablet hardness of more than 6kP.  
 ORGANIC CHEMISTRY - Preferred Components: The first solvent for the PS is  
 water, formic acid, dimethyl sulfoxide or methyl formamide. The first  
 solvent is miscible in all proportions with the solvent in which the wSPS  
 is poorly soluble or insoluble. The solvent in which the wSPS is poorly

soluble or insoluble is an organic solvent comprising a ketone, an  
 alcohol, an ester, an organic acid, an ether, a nitrile, an aromatic  
 hydrocarbon, or an aliphatic hydrocarbon, preferably acetone, ethanol,  
 methanol, isopropyl alcohol, ethyl acetate, ethyl lactate, methyl  
 salicylate, acetic acid, toluene or hexane.

The modified wSPS is obtained by milling a wSPS in a milling device  
 comprising a ball mill, a knife mill (containing at least one knife blade  
 rotating at 1-3000 (preferably 2000) rpm, an air-jet mill or a hammer  
 mill, for 0.25-600 minutes. The wSPS is milled at a **temperature**  
 that is lower than the glass **transition temperature** of  
 the wSPS.

PHARMACEUTICALS - Preferred Drugs: The pharmacologically active substance  
 is glycine, N-(1-cyclohexyl-2-((4-hydroxyimino)aminomethyl)-  
 phenyl(methylamino)carbonyl)-1-azetidinyl)-2-oxoethyl)-, ethyl ester,  
 (S-(Rasterisk, Sasterisk)), metoprolol or felodipine. The modified release  
 formulation is in the form of granules comprising the modified wSPS and  
 pharmacologically active substance.

L126 ANSWER 79 OF 85 WPIX COPYRIGHT 2007 THE THOMSON CORP ON STN  
 AN 2002-106989 [15] WPIX Full-text  
 DNC C2002-033092 [15]  
 DNN N2002-079520 [15]  
 TI New polymerizable liquid crystalline compounds, used e.g. in optical  
 filters, coating materials or effect pigments, have two phenyl groups each  
 substituted with two crosslinkable groups and attached to a mesogenic  
 group  
 DC A41; D21; E13; E24; G02; L03; P78; P81; U14  
 IN HAREMA S; PARKER R; PRECHTL F; SCHMIDT G; SCHMIDT H; SCHMIDT H W; SCHMITT  
 G; SCHNEIDER N; SCHUMACHER P; SCHUMACHER P  
 PA (BADI-C) BASF AG  
 CYC 28  
 PI DE 10016524 A1 20011004 (200215)\* DE 29[0] C07B061-00  
 EP 1142863 A2 20011010 (200215) DE C07C069-94  
 JP 2002030042 A 20020129 (200224) JA 31 C07C069-92  
 US 20020036285 B2 20020328 (200225) EN C09K019-52  
 US 6699405 B2 20040302 (200417) EN C09K019-20  
 US 20040075080 A1 20040422 (200428) EN C09K019-52  
 US 6793986 B2 20040921 (200462) EN C09K019-00  
 ADT DE 10016524 A1 DE 2000-10016524 20000403; EP 1142863 A2 EP 2001-108302  
 20010402; JP 2002030042 A JP 2001-105108 20010403; US 20020036285 B2 US  
 2001-824022 20010403; US 6699405 B2 US 2001-824022 20010403; US  
 20040075080 A1 Cont of US 2001-824022 20010403; US 6793986 B2 Cont of US  
 2001-824022 20010403; US 20040075080 A1 US 2003-678111 20031006; US  
 6793986 B2 US 2003-678111 20031006  
 FDT US 20040075080 A1 Cont of US 6699405 B; US 6793986 B2 Cont of US 6699405 B  
 PRAI DE 2000-10016524 20000403  
 IC ICM C07B061-00; C07C069-92; C07C069-94; C09K019-00; C09K019-20; C09K019-52  
 ICS A61K007-00; B4D005-00; C07C067-14; C07C069-84; C07C069-90;  
 C07D493-04; C09B063-00; C09B067-20; C09B069-10; C09D017-00;  
 C09D201-00; C09D007-12; C09K019-06; C09K019-10; C09K019-12;  
 C09K019-32; C09K019-34; C09K019-38; G02B001-04; G02B005-30;  
 G02F001-13; G02F001-1335  
 AB DE 10016524 A1 UPAB: 20050524  
 NOVELTY - New polymerizable liquid crystalline compounds with two  
 disubstituted phenyl groups attached to a mesogenic group via single bonds,  
 ether, thioether, ester, amide or similar linking groups, in which the two  
 substituents on each phenyl group are crosslinkable groups.

DETAILED DESCRIPTION - Polymerizable liquid crystalline (LC) compounds  
 of formula (I) are new.

Al, A2 = crosslinkable groups;



X = a single bond, -O-, -S-, -O-N-, -OCO-, -COC-, -OCOO-, -CONR-, -NRCO-, -NR-, -OCONR-, -NRCOO-, -CH2O- or -NRCOOR-;  
R = H or 1-4C alkyl; and  
M = a mesogenic group.

INDEPENDENT CLAIMS are also included for the following:

(a) A method for the production of (I) by reacting a compound of formula (III) with a mesogenic compound of formula X''-M-X'' (IV).

X', X'' = reactive side-groups which combine to form group X.

(b) Compositions containing (I) and optionally other components selected from cholesteric (optionally crosslinkable) compounds, inorganic pigments, coloring agents and optionally polymerizable diluents or supports.

(c) Pigments containing (I) in crosslinked form.

USE - For the production of optical elements, especially e.g. filters and polarizers, coating materials, effect films, cosmetic materials and single- or multi-layer cholesteric effect pigments (claimed).

ADVANTAGE - Improved crosslinkable, achiral, liquid crystalline (LC) monomers enabling the production of LC polymers with a high crosslink density and a stabilized LC phase.

CPI: A01-E11; D08-B; E07-A03A; E07-A03B; E07-B02; E07-D01; E07-D02;  
E10-A11B; E10-A12C1; E10-A13B1; E10-A14A; E10-A20A; E10-B01;  
E10-B02; E10-B03; E10-B04; E10-D03; E10-G02A1; E10-H01; E10-H03C2;  
E10-J01; E10-J02B3; G02-A02B; G02-A05; L03-D01D1; L03-G02  
EPI: U14-K01A1C

L126 ANSWER 80 OF 85 WPIC COPYRIGHT 2007 THE THOMSON CORP on STN

AN 1999-529802 (45) WPIC Full-text

CR 1995-375175

INC C1999-155946 (45)

TI Masked polyisocyanates obtained from hydroxyaromatic compounds for powder coating compositions.

DC A23; A25; A60; A82; G02

IN ARDAUD P; BERNARD J

PA (RHOD-C) RHODIA CHIM

CYC 17

PI EP 943638 A2 19990922 (199945)\* FR 10101 C08G018-80

ADT EP 943638 A2 Div Ex EP 1995-400934 19950426; EP 943638 A2 EP 1999-112178

FDT EP 943638 A2 Div ex EP 680984 A

PRAI FR 1994-5436 19940504

IC ICM C08G018-80

AB EP 943638 A2 UPAB: 20050522

NOVELTY - Masked polyisocyanate is obtained by polycondensation of an isocyanate with an aromatic derivative which is hydroxylated on the ring and which has a group with a function selected from carboxylic acids and nitriles. The polyisocyanate has an (apparent) melting point of at least 30degreesC and a Tg of at least 10degreesC.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for method for synthesizing masked (poly)isocyanate as claimed; and powder composition containing at least one said polyisocyanate.

USE - in making powder compositions for use in coatings (claimed). ADVANTAGE - It is easier to define the melting point and the Tg of polyisocyanate than in previous work.

CPI: A02-C; A05-G01A; A05-G01E1; A12-B01K; G02-A02H; G02-A05

TECH

ORGANIC CHEMISTRY - Preferred Polyisocyanate: The polyisocyanate contains at least one masked isocyanate group as claimed which is linked to the compound skeleton by sp3 carbon with preferably 2 H atoms. Claimed polyisocyanates include compounds of biuret type and trimers of polymethylene diisocyanate; claimed isocyanate involved in synthesis being

(trimer of) hexamethylene diisocyanate. Hydroxylated aromatic derivative has formula Ar(R)n(Y - Z)m(OH)p (I), in which

Ar = aromatic group;

R = hydrocarbon group, generally alkyl, preferably methyl or most preferably H;

Z = carboxylic acids or nitriles;

Y = divalent groups advantageously with simple bonding such as O-, S- or NR

n + m + p = number of sites on Ar which can be substituted, generally p = 1 and m = 2.

The (apparent) melting point of polyisocyanate is preferably at least 50degreesC.

Preferred Composition: Composition comprises the polyisocyanate in powder form, catalyst based on zinc or tin, and powdered polyol.

Preferred Method: Masked isocyanate is synthesized by contacting hydroxylated aromatic derivative with isocyanate at temperature at most 100degreesC and precipitating compound using a polar solvent of 4-20C alkane or alkene type.

L126 ANSWER 81 OF 85 WPIC COPYRIGHT 2007 THE THOMSON CORP on STN

AN 1997-322139 (30) WPIC Full-text

INC C1997-104238 (30)

TI Antiferroelectric compounds for large scale displays, e.g. televisions - produced from an optically active alcohol having a tri:fluoromethyl group on an asymmetric carbon and having a terminal alkoxy group

DC E14; L03; P81

IN JOHNO M; KINO-M; MINETA H; TOMIYAMA T; YUI T

PA (MITN-C) MITSUBISHI GAS CHEM CO INC

CYC 4

PI EP 780456 A1 19970625 (199730)\* EN 14111 C09K019-02

JP 09165356 A 19970624 (199735) JA 911 C07C069-92

US 5723069 A 19980303 (199816) EN 1010 C09K019-20

EP 780456 B1 20001011 (200052) EN C09K019-02

DE 69610602 E 20001116 (200065) DE C09K019-02

ADT EP 780456 A1 EP 1996-309030 19961211; JP 09165356 A JP 1995-329145

19951121; DE 69610602 E DE 1996-69610602 19961211; EP 780456 B1 EP

1996-309030 19961211; DE 69610602 E EP 1996-309030 19961211; US 5723069 A

US 1996-767680 19961217

FDT DE 69610602 E Based on EP 780456 A

PRAI JP 1995-329145 19951218

IC ICM C07C069-92; C09K019-02; C09K019-20

ICS C07C069-76; C07C069-86; G02F001-13

ICI C07M007:00

AB EP 780456 A1 UPAB: 20060113

Antiferroelectric compounds of formula (I) are new: R = linear alkyl; A = -O-, -COO-; m 25; n = 1-3; X and Y = hydrogen or a fluorine atom; C\* = asymmetric carbon. Also claimed are compositions containing (I), and a device containing the compositions.

USE - The compounds are useful in higher performance, large size display devices, e.g. television sets.

ADVANTAGE - The compounds provide improved response time, decreased driving voltage, improved tilt angle or broadened temperature range of the anti-ferroelectric phase.

CPI: E10-G02A1; L03-D01D1

MC

Member(0002)

ABEQ JP 09165356 A UPAB 20060113

Antiferroelectric compounds of formula (I) are new: R = linear alkyl; A = -O-, -COO-; m 25; n = 1-3; X and Y = hydrogen or a fluorine atom; C\* = asymmetric carbon. Also claimed are compositions containing (I), and

USE - The compounds are useful in higher performance, large size display devices, e.g. television sets.

ADVANTAGE - The compounds provide improved response time, decreased driving voltage, improved tilt angle or broadened **temperature** range of the anti-ferroelectric phase.

R (0003) US 5723069 A UPAB 20060113  
 Antiferroelectric compounds of formula (1) are new: R = linear alkyl; A = -O-, -COO-, m 25; n 1-3; X and Y = hydrogen or a fluorine atom; C\* = asymmetric carbon. Also claimed are compositions containing (1), and a device containing the compositions.  
 USE - The compounds are useful in higher performance, large size display devices, e.g. television sets.  
 ADVANTAGE - The compounds provide improved response time, decreased driving voltage, improved tilt angle or broadened **temperature** range of the anti-ferroelectric phase.

r(0004)  
 EP 780456 B1 UPAB 20060113  
 Antiferroelectric compounds of formula (1) are new: R = linear alkyl; A = -CO-, -COO-, n 25; n 1-3; X and Y = hydrogen or a fluorine atom; C-C\* = asymmetric carbon. Also claimed are compositions containing (1), and a device containing the compositions.  
 USE - The compounds are useful in higher performance, large size display devices, e.g. television sets.  
 ADVANTAGE - The compounds provide improved response time, decreased driving voltage, improved tilt angle or broadened **temperature** range of the anti-ferroelectric phase.

ANSWER 82 OF 85 WPX COPYRIGHT 2007 THE THOMSON CORP on STN  
1993-375175 [49] WPX Full-text  
1999-529802  
C1995-162524 [49]  
Blocked isocyanate used in coatings - is obtd. by condensing isocyanate  
with hydroxylated aromatic derivative having carboxyl and/or nitrile  
functional grps.

A25; A82; G02  
ARAUDA P; BERNARD J  
(ARA-I) ARAUD P; (BERN-I) BERNARD J; (RHOD-C) RHODIA CHIM; (RHON-C)  
RHONE-POULENC CHIM; (RHON-C) RHONE-POULENC CHIM; (RHON-C) RHONE-POULENC  
INC

	FR	11[0]	
23			
SEP 680984	A1 19951108 (199549)*	FR	C08G018-80
AU 2719594	A1 19951110 (199550)	FR	C08G018-80
CAU 9517771	A 19951109 (199601)	EN	C07C271-52
CAU 2148530	A 19951105 (199612)	FR	C07D251-34
BER 9501914	A 19960227 (199615)	PT	C07C265-02
JP 08053531	A 19950227 (199618)	JA	C08G018-80
CA 9503362	A 19970430 (199723)	EN	C07C000-00
AU 9941178	A 19990923 (199951)#	EN	C08G018-80
SEP 680984	B1 20000308 (200017)	FR	C08G018-80
DES 69515362	E 20000413 (200025)	DE	C08G018-80
ES 2145880	T3 20000716 (200039)	ES	C08G018-80
AU 736228	B 20010726 (200149)#	EN	C08G018-80
US 20010039325	A1 20011108 (200171)	EN	C08G018-80
CA 2148530	C 20020101 (200212)	FR	C07D251-34
KR 369873	B 20030326 (200353)	KO	C07C269-02
US 20040014905	A1 20040122 (200407)	EN	C08G018-80

JP 200536244 A 20050210 (200511) JA 1719  
ADT JP 600984 A 1995-400934 19950426; FR 2419594 A1 FR 1994-5436 19940504;  
DE 6915362 E DE 1995-6915362 19950426; EP 680984 B1 EP 1995-400934  
19950426; DE 6915362 E EP 1995-400934 19950426; ES 2145880 T3 EP  
19950426; DE 6915362 E AU 9511771 A AU 1995-17771 19950501; AU 941178 A  
Div Ex AU 1995-17771 19950501; AU 736228 B Div Ex AU 1995-17771 19950501;  
CA 2148530 CA 1995-2148530 19950503; CA 2148530 CA 1995-2148530  
19950503; BR 9501914 A BR 1995-1914 19950504; KR 369873 B KR 1995-11059  
19950504; US 2001003925 A1 Cont. of US 1995-434535 19950504; US  
20040014905 A1 Cont. of US 1995-434535 19950504; ZA 9503352 A ZA 1995-3592  
19950504; JP 08053533 A JP 1995-1967675 19950508; JP 2005036244 A Div Ex JP  
1995-109675 19950508; US 20010039325 A1 US 1997-960620 19971029; US  
20040014905 A1 Cont. of US 1997-960620 19971029; EP 680984 B1 Related to EP  
1995-112178 19950426; AU 941178 A AU 1995-41178 19990727; AU 736228 B AU  
1995-41178 19990727; US 20040014905 A1 US 2003-375047 20030304; JP  
200536244 A JP 2004-298060 20041012  
AU 736228 B Previous Publ AU 941178 A; DE 6915362 E Based on EP 680984  
A; ES 2145880 T3 Based on EP 680984 B; EP 680984 B1 Related to EP 943638  
A; KR 369873 B Previous Publ KR 95032096 A  
JP 1994-5436 19940504  
FRAI AU 1999-41178-1 19990727

IC: C07C265-02; C08G018-80  
IPCR C07C0265-00 [I,C]; C07C0265-14 [I,A]; C07C0271-00 [I,C]; C07C0271-42 [I,A]; C07C0271-52 [I,A]; C07C0271-58 [I,A]; C07D0251-00 [I,C]; C07D0251-34 [I,A]; C08G0018-00 [I,C]; C08G0018-79 [I,A]; C08G0018-80 [I,A]; C09D0175-00 [I,A]; C09D0175-00 [I,C]; C09D0175-04 [I,A]; C09D0175-04 [I,C]; C09D0175-08 [I,A]; C09D0175-08 [I,C]; C09D0005-03 [I,A]; C09D0005-03 [I,C]; C09D0005-03 [I,C]  
AB EP 680984 A1 UPAB: 20050702  
Blocked isocyanate is claimed which is obtd. by condensing an isocyanate with a hydroxylated aromatic derivative having carboxyl and/or nitrile functional gps. and has a fusion pt. of at least 30° C. The preparation of the above prod. and the production of a powder coating by heating a compsn. at 100-250°C are also claimed.

**USE** - Used in powder compns. for coatings (claimed), eg. in painting.

**ADVANTAGE** - Avoids the use of solvents, reducing deleterious effects on humans, animals and the environment.

Member(0002)  
ABEQ FR 2719594 A1 UPAB 20050702  
Blocked isocyanate is claimed which is obtd. by condensing an isocyanate with a hydroxylated aromatic deriv. having carbonyl and/or nitrile functional gps. and has a fusion pt. of at least 30°C. The prepn. of the above prod. and the prodn. of a powder coating by heating a compsn. at 100-250°C are also claimed.  
USE - Used in powder compsns. for coatings (claimed), eg. in painting.  
ADVANTAGE - Avoids the use of solvents, reducing deleterious effects on humans, animals and the environment..

Member (0006)  
ABEQ JP 08053531 A UPAB 20050702

Blocked isocyanate is claimed which is obtd. by condensing an isocyanate with a hydroxylated aromatic deriv. having carboxyl and/or nitrile functional gps. and has a fusion pt. of at least 30 °C. The prepn. of the above prod. and the prodn. of a powder coating by heating a compsn. at 100-250 °C are also claimed.

USE - Used in powder compsns. for coatings (claimed), eg. in painting.

ADVANTAGE - Avoids the use of solvents, reducing deleterious effects on humans, animals and the environment.

Member(0007)

ABEQ ZA 9503592 A UPAB 20050702

Blocked isocyanate is claimed which is obtd. by condensing an isocyanate with a hydroxylated aromatic deriv. having carboxyl and/or nitrile functional gps. and has a fusion pt. of at least 30°C. The prepn. of the above prod. and the prodn. of a powder coating by heating a compsn. at 100-250°C are also claimed.

USE - Used in powder compsns. for coatings (claimed), eg. in painting.

ADVANTAGE - Avoids the use of solvents, reducing deleterious effects on humans, animals and the environment.

Member(0009)

ABEQ EP 680984 B1 UPAB 20050702

Blocked isocyanate is claimed which is obtd. by condensing an isocyanate with a hydroxylated aromatic deriv. having carboxyl and/or nitrile functional gps. and has a fusion pt. of at least 30°C. The prepn. of the above prod. and the prodn. of a powder coating by heating a compsn. at 100-250°C are also claimed.

USE - Used in powder compsns. for coatings (claimed), eg. in painting.

ADVANTAGE - Avoids the use of solvents, reducing deleterious effects on humans, animals and the environment.

L126 ANSWER 83 OF 85 WPX COPYRIGHT 2007 THE THOMSON CORP on STN

AN 1992-205240 (25) WPX Full-text

INC C1992-093438 (21)

TI Aromatic polyester carbonates for high strength and modulus moulded articles - has low phase transition **temperature** and structural units including (subst) Phydroxy benzoic acid, 2,6-dihydroxy naphthalene, dihydroxy cpd., carboxylic acid etc.

DC A23; F01

PA (YAWH-C) NIPPON STEEL CHEM CO; YAWA-C) NIPPON STEEL CORP

IN KAWABE M; KIMURA M; MÖRI Y; YAMAKA I

CYC 1

PI JP 04136028 A 19920511 (199225)\* JA 6[0] C08G063-64

ADT JP 04136028 A JP 1990-257438 19900928

IPRAI JP 1990-257438 19900928

IPCR C08G063-00 [I,C]; C08G063-64 [I,A]

AB JP 04136028 A UPAB: 20050504

An aromatic polyester carbonate with an inherent viscosity (IV) in p-chlorophenol at 30 deg.C at a concentration of 0.1 g/dl of at least 0.5 dl/g or in the solid state having liquid crystallinity and consisting of structural units from (a) p-hydroxy-benzoic acid or nuclear-subst. **p-hydroxybenzoic acid**, (b) 2,6-dihydroxynaphthalene, (d) carboxylic acid and (e) an opt. aromatic dicarboxylic acid with a+b+c = 1; b+c = dte; b/(b+c) above 0.5; d/(d+e) = 0.2-1.0, and a = 0.1-0.9. Each a, b, c, d and e is mol ratio of (a), (b), (c) (d) and (e) respectively.

USE/ADVANTAGE - The carbonates have a relatively low phase transition **temperature** of below 400 deg.C and excellent melt mouldability to give, by extrusion, injection or blow moulding, mouldings with excellent properties such as high mechanical strength and high modulus useful for films, fibres, containers and hoses

MC CFI: A03-E06A; F01-D04

L126 ANSWER 84 OF 85 WPX COPYRIGHT 2007 THE THOMSON CORP on STN

AN 1988-016099 [03] WPX Full-text

INC C1988-007024 (21)

TI Production of high purity 5-amino-salicylic acid - comprises catalytic hydrogenation of 5-p-sulpho-phenyl-azo-salicylic acid followed by **precipitation** of prod. by acidification

DC B05

IN SJOESTRAND U; SJOESTRAND U

PA (KEMA-C) NOBEL KEMI AB

CYC 10

PI EP 253788 A 19880120 (198803)\* EN 4[0]

SE 8603007 A 19880108 (198808) SV

NO 8702809 A 19880201 (198810) NO

AU 8775258 A 19880114 (198811) EN

DK 8703507 A 19880108 (198813) DA

JP 63039843 A 19880220 (198813) JA

FI 8702977 A 19880108 (198814) FI

US 4788331 A 19881129 (198850) EN 4

SE 462095 B 19900507 (199021) SV

IL 82977 B 19901223 (199107) EN

CA 1287643 C 19910813 (199137) EN

EP 253788 B 19920129 (199205) EN

DE 3776440 G 19920312 (199212) DE

FI 88711 B 19930315 (199316) FI

JP 07074186 B2 19950809 (199536) JA 4

DK 174615 B 20030721 (200354) DA

ADT EP 253788 A EP 1987-850198 19870617; SE 8603007 A SE 1986-3007 19860707;

SE 462095 B SE 1986-3007 19860707; JP 63039843 A JP 1987-166764 19870703;

JP 07074186 B2 JP 1987-166764 19870703; FI 88711 B FI 1987-2977 19870706;

DK 174615 B DK 1987-3507 19870707; US 4788331 A US 1987-79591 19870707

DK 174615 B Previous Publ DK 8703507 A; FI 88711 B Previous Publ FI

8702977 A; JP 07074186 B2 Based on JP 63039843 A

IPRAI SE 1986-3007 19860707

IC ICM C07C229-64

IPCR A61K0031-60 [I,A]; A61K0031-60 [I,C]; B01J0027-20 [I,C]; B01J0027-22

[I,A]; C07B0061-00 [I,A]; C07B0061-00 [I,C]; C07C [I,S]; C07C027-00

[I,A]; C07C027-00 [I,C]; C07C027-04 [I,A]; C07C027-06 [I,A];

C07C0229-00 [I,C]; C07C0229-18 [I,A]; C07C0229-64 [I,A]

EP 253788 A UPAB: 20060105

AB Production of 5-amino-salicylic acid (I) comprises (a) hydrogenation of 5-(p-

sulphophenyl)azo-salicylic acid (II) (produced by linking of the double Na salt of salicylic acid with a diazonium salt derived from sulphonic acid) with H2 and a catalyst at elevated pressure and over 50 deg C; and (b) **pptn** of (I) from the mother liquor by acidification. The catalyst is esp a **transition** metal, e.g. Pd or Pt. In step (b) the mother liquor is acidified to pH 4.5, when (I) is pptd but not the sulphonic acid.

USE/ADVANTAGE - (I) is obtained in extremely pure form esp suitable for use in pharmaceutical preprns.

MC CFI: B10-A09B; B10-B02A; N02-F

Member(0008)

ABEQ US 4788331 A UPAB 20060105

Prodn. 5-amino salicylic acid comprises linking double Na salt of

salicylic acid (I) with diazonium salt

salicylic acid (II) to 5-(p-sulphophenyl azo)-salicylic acid (III),

which is then split by hydrogenation (H2/Pd or Pt) to 5-amino-salicylic

acid (IV) and sulphanylic acid (II) which is **recycled** after

sepn. of (IV) and then (II) by successive acidification to pH 4.5, then 3.

X(-) is Cl- or 1/2 SO4(2-).

ADVANTAGE - 95% isomerically pure prod. in 91% yield using standard

equipment without hazards. - (4pp)

Member(0015)

ABEQ JP 95074186 B2 UPAB 20060105

Prodn. of 5-aminosalicylic acid (I) comprises (a) hydrogenation of 5-(*p*-sulphophenylazo) - salicylic acid (II)

(produced by linking of the double Na salt of salicylic acid with a diazonium salt derived from sulphamic acid) with H<sub>2</sub> and a catalyst at elevated pressure and over 50 deg C; and (b) pptn of (I) from the mother liquor by acidification.

The catalyst is esp a transition metal, e.g. Pd or Pt, in step (b) the mother liquor is acidified to pH 4.5, when (I) is pptd but not the sulphamic acid.

USE/ADVANTAGE - (I) is obtained in extremely pure form esp suitable for use in pharmaceutical preps.

L126 ANSWER 85 OF 85 WPX COPYRIGHT 2007 THE THOMSON CORP ON STN

AN 1983-34455K [14] WPX Full-text

INC C1983-033664 (21)

TI Liquid crystal co:polyester(s) of enhanced glass transition temp, hydroquinone and 2,2-bis (4-hydroxyphenyl) propane

DC A23

IN DEEX O D

PA (MONS-C) MONSANTO CO

CYC 10

PI US 4377681 A 19830322 (198314)\* EN 4

EP 88742 A 19830914 (198338) EN C08G063-60

JP 58162631 A 19830927 (198344) JA

CA 1189242 A 19850618 (198529) EN

EP 88742 B 19860910 (198637) EN

DE 3365960 G 19861016 (198643) DE

JP 03060331 B 19910913 (199141) JA

ADT US 4377681 A US 1982-354568 19820304; US 4377681 A US 1983-475579

19830315; EP 88742 A EP 1983-870015 19830302; JP 03060331 B JP 1983-33894

19830303

US 1982-000354563 19820304

PRAI US 1982-354568 19820304

US 1983-475579 19830315

IPCR B01J0031-00 [I,A]; B01J0031-00 [I,C]; C08F0008-00 [I,A]; C08F0008-00 [I,C]; C08G0063-00 [I,A]; C08G0063-00 [I,C];

C08G0063-60 [I,A]

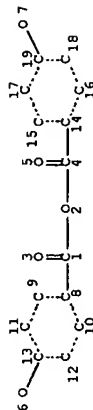
AB US 4377681 A UPAB: 20050421

A copolyester (I) is claimed which comprises 10-40 mol.% of (A) -O-PCGH<sub>4</sub>-CO- (A) units (B) -CO-m-CGH<sub>4</sub>-CO- (B) units, 82-95 mol.% of (C) -O-PCGH<sub>4</sub>-O- (C) units (based on (C) and (D) and (D) -O-PCGH<sub>4</sub>-C(CH<sub>3</sub>)<sub>2</sub>-PCGH<sub>4</sub>-O- (D) units of the given formulae. (I) forms a thermotropic melt phase at below 340 deg.C, has a glass transition temperature of at least 160 deg.C and has an inherent viscosity of at least 0.3 at 30 deg.C and 0.5g/100 ml of 60:40 phenol:tetrachloroethane. The glass transition temperature is enhanced without sacrificing liquid crystallinity.

MC CPI: A05-E; A05-E03

\*\*\*\*\*Below are results from a general search on just anhydrides\*\*\*\*\*

=> d que 1152 2 SEA FILE-REGISTRY ABB-ON PLU-ON ("P-HYDROXYBENZOIC ACID"/CN  
L2 OR "P-HYDROXYBENZOIC ACID ANHYDRIDE"/CN)  
L3 STR



NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM

DEFAULT ELEVEL IS LIMITED

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 19

STEREO ATTRIBUTES: NONE

L4 2 SEA FILE-REGISTRY FAM FUL L3

L5 2643 SEA FILE-REGISTRY ABB-ON PLU-ON 99-96-7/CRN

L6 1 SEA FILE-REGISTRY ABB-ON PLU-ON 61591-05-3/CRN

L7 2 SEA FILE-REGISTRY ABB-ON PLU-ON (L4 OR L6)

L8 2646 SEA FILE-REGISTRY ABB-ON PLU-ON (L2 OR L4 OR L5 OR L6)

L9 2 SEA FILE-HCAPLUS ABB-ON PLU-ON L7

L10 33 SEA FILE-HCAPLUS ABB-ON PLU-ON P-HYDROXYBENZOIC ACID (3A)ANHYD

L11 33 SEA FILE-HCAPLUS ABB-ON PLU-ON P (3A)HYDROXYBENZOIC ACID (3A)A

L12 35 SEA FILE-HCAPLUS ABB-ON PLU-ON (L9 OR L10 OR L11)

L13 13 SEA FILE-HCAPLUS ABB-ON PLU-ON (L2 OR L4 OR L5 OR L6)

L14 3609 SEA FILE-HCAPLUS ABB-ON PLU-ON PRECIPITATES/CT

L15 1685761 SEA FILE-HCAPLUS ABB-ON PLU-ON PRECIPITATE? OR ISOLAT?

L16 35 SEA FILE-HCAPLUS ABB-ON PLU-ON (L9 OR L10 OR L11 OR L12 OR L13)

L17 1 SEA FILE-HCAPLUS ABB-ON PLU-ON L16 AND (L14 OR L15)

L18 49418 SEA FILE-HCAPLUS ABB-ON PLU-ON "GLASS TRANSITION TEMPERATURE"

L19 70211 SEA FILE-HCAPLUS ABB-ON PLU-ON "PHASE TRANSITION TEMPERATURE"

L20 13203 SEA FILE-HCAPLUS ABB-ON PLU-ON "SUPERCONDUCTING CRITICAL

L21 192124 SEA FILE-HCAPLUS ABB-ON PLU-ON TEMPERATURE" +OLD/CT

L22 6 SEA FILE-HCAPLUS ABB-ON PLU-ON TEMPERATURE? (5A) TEMPERATURE?

L23 7 SEA FILE-HCAPLUS ABB-ON PLU-ON L16 AND (L18 OR L19 OR L20 OR

L24 25005 SEA FILE-HCAPLUS ABB-ON PLU-ON L21)

L25 25005 SEA FILE-HCAPLUS ABB-ON PLU-ON L21)

L26 133 SEA FILE-HCAPLUS ABB-ON PLU-ON L21)

L27 25005 SEA FILE-HCAPLUS ABB-ON PLU-ON L21)

L28 133 SEA FILE-HCAPLUS ABB-ON PLU-ON L21)

L129 AFFINITY\*+OLD/CT PIU-ON "PRECIPITATION (CHEMICAL) (L)

L130 AGENTS\*+OLD/CT PIU-ON "PRECIPITATION (CHEMICAL) (L)

L131 APP.\*+OLD/CT PIU-ON "PRECIPITATION (CHEMICAL) (L)

L132 CRYOGENIC\*+OLD/CT PIU-ON "PRECIPITATION ENTHALPY\*+OLD/C

L133 T PIU-ON "PRECIPITATION (CHEMICAL) (L)

L134 KINETICS\*+OLD/CT PIU-ON "PRECIPITATION (CHEMICAL) (L)

L137 670864 SEA FILE-HCAPPIUS ABB-ON PIU-ON 2\*PRECIPITA?

L138 17575 SEA FILE-HCAPPIUS ABB-ON PIU-ON L8

L139 6698 SEA FILE-HCAPPIUS ABB-ON PIU-ON L8 (L) (PREP OR PROC OR

L140 RACT)/RL

L141 951 SEA FILE-HCAPPIUS ABB-ON PIU-ON L38 AND (L14 OR L15 OR L18 OR

L142 L19 OR L20 OR L21 OR L26 OR L27 OR L28 OR L29 OR L30 OR L31 OR

L143 L32 OR L33 OR L34)

L144 410 SEA FILE-HCAPPIUS ABB-ON PIU-ON L39 AND (L18 OR L19 OR L20 OR

L145 L21)

L146 356 SEA FILE-HCAPPIUS ABB-ON PIU-ON L40 AND ?CRYSTA?

L147 350 SEA FILE-HCAPPIUS ABB-ON PIU-ON L41 AND (?TEMPERATURE?)

L148 342 SEA FILE-HCAPPIUS ABB-ON PIU-ON L42 AND ?TRANSITION?

L149 6 SEA FILE-HCAPPIUS ABB-ON PIU-ON L43 AND (CRYSTAL? (5A) BENZOIC?)

L150 86 SEA FILE-HCAPPIUS ABB-ON PIU-ON L37 AND (CRYSTAL? (5A) BENZOIC?)

L151 13 SEA FILE-HCAPPIUS ABB-ON PIU-ON L47 AND (L14 OR L15 OR L18 OR

L152 L19 OR L20 OR L21 OR L26 OR L27 OR L28 OR L29 OR L30 OR L31 OR

L153 L32 OR L33 OR L34)

L154 20 SEA FILE-HCAPPIUS ABB-ON PIU-ON (L23 OR L46 OR L49)

L155 13 SEA FILE-HCAPPIUS ABB-ON PIU-ON L47 AND ?TRANSITION?

L156 23 SEA FILE-HCAPPIUS ABB-ON PIU-ON (L52 OR L50)

L157 2280 SEA FILE-HCAPPIUS ABB-ON PIU-ON L37 AND (L14 OR L15 OR L18 OR

L158 L19 OR L20 OR L21 OR L26 OR L27 OR L28 OR L29 OR L30 OR L31 OR

L159 L32 OR L33 OR L34)

L160 56 SEA FILE-HCAPPIUS ABB-ON PIU-ON L54 AND (TRANSITION (5A) ?BENZOI

L161 C7)

L162 56 SEA FILE-HCAPPIUS ABB-ON PIU-ON L63 AND (TRANSITION (5A) ?BENZOI

L163 C7)

L164 54 SEA FILE-HCAPPIUS ABB-ON PIU-ON L66 AND (TEMP? OR TMP)

L165 29 SEA FILE-HCAPPIUS ABB-ON PIU-ON L67 AND TRANSITION TEMP?

L166 10 SEA FILE-HCAPPIUS ABB-ON PIU-ON L67 AND TRANSITION TEMP? (5A) ?B

L167 ENZOIC?

L168 29 SEA FILE-HCAPPIUS ABB-ON PIU-ON (L68 OR L70)

L169 49 SEA FILE-HCAPPIUS ABB-ON PIU-ON (L53 OR L71)

L170 301 SEA FILE-HCAPPIUS ABB-ON PIU-ON ("UENO R"/AU OR "UENO

L171 RYZO"/AU OR "UENO RYZO"/AU OR "UENO RYZO"/AU OR "UENO

L172 RYZO"/AU)

L173 93 SEA FILE-HCAPPIUS ABB-ON PIU-ON ("KITAYAMA M"/AU OR "KITAYAMA

L174 MASAYA"/AU)

L175 10 SEA FILE-HCAPPIUS ABB-ON PIU-ON ("IZUMICHI M"/AU OR "IZUMICHI

L176 NOBUTAKA"/AU)

L177 6 SEA FILE-HCAPPIUS ABB-ON PIU-ON ("KITAKA M"/AU OR "KITAKA

L178 MASAHARU"/AU)

L179 3 SEA FILE-HCAPPIUS ABB-ON PIU-ON L103 AND L104 AND L105 AND

L180 L106

L181 48 SEA FILE-HCAPPIUS ABB-ON PIU-ON (L103 AND (L104 OR L105 OR

L182 L106)) OR (L104 AND (L105 OR L106)) OR (L105 AND L106)

L183 12 SEA FILE-HCAPPIUS ABB-ON PIU-ON L108 AND L37

L110 5 SEA FILE-HCAPPIUS ABB-ON PIU-ON L108 AND 2ANHYDRIDE?

L111 18 SEA FILE-HCAPPIUS ABB-ON PIU-ON (L107 OR L109 OR L110)

L112 48 SEA FILE-HCAPPIUS ABB-ON PIU-ON (L103 AND (L104 OR L105 OR

L113 L106))

L114 11 SEA FILE-HCAPPIUS ABB-ON PIU-ON (L104 AND (L105 OR L106))

L115 3 SEA FILE-HCAPPIUS ABB-ON PIU-ON (L105 AND L106)

L116 11 SEA FILE-HCAPPIUS ABB-ON PIU-ON (L112 AND (L113 OR L114)) OR

L117 (L113 AND L114)

L118 25 SEA FILE-HCAPPIUS ABB-ON PIU-ON (L111 OR L115)

L119 111509 SEA FILE-HCAPPIUS ABB-ON PIU-ON 2ANHYDRIDES+OLD,NT/CT

L120 242800 SEA FILE-HCAPPIUS ABB-ON PIU-ON 2ANHYDRIDE?

L121 261405 SEA FILE-HCAPPIUS ABB-ON PIU-ON (L127 OR L128)

L122 25342 SEA FILE-HCAPPIUS ABB-ON PIU-ON L129 AND (L14 OR L15 OR L18

L123 OR L19 OR L20 OR L21 OR L26 OR L27 OR L28 OR L29 OR L30 OR L31

L124 OR L32 OR L33 OR L34)

L125 6814 SEA FILE-HCAPPIUS ABB-ON PIU-ON L130 AND (L18 OR L19 OR L20

L126 OR L21)

L127 80 SEA FILE-HCAPPIUS ABB-ON PIU-ON L131 AND (L26 OR L27 OR L28

L128 OR L29 OR L30 OR L31 OR L32 OR L33 OR L34)

L129 2 SEA FILE-HCAPPIUS ABB-ON PIU-ON L132 AND ?CRYSTAL?

L130 16 SEA FILE-HCAPPIUS ABB-ON PIU-ON L132 AND ?CRYSTAL?

L131 16 SEA FILE-HCAPPIUS ABB-ON PIU-ON (L133 OR L134)

L132 79 SEA FILE-HCAPPIUS ABB-ON PIU-ON L132 AND (TRANSITION? (3A) TMP

L133 OR TEMP?)

L134 15 SEA FILE-HCAPPIUS ABB-ON PIU-ON L137 AND ?CRYSTAL?

L135 332 SEA FILE-HCAPPIUS ABB-ON PIU-ON L130 AND CRYSTAL? (3A) ANHYDRIDE

L136 ?

L137 74 SEA FILE-HCAPPIUS ABB-ON PIU-ON L139 AND (L18 OR L19 OR L20

L138 OR L21)

L139 2 SEA FILE-HCAPPIUS ABB-ON PIU-ON L140 AND (L26 OR L27 OR L28

L140 OR L29 OR L30 OR L31 OR L32 OR L33 OR L34)

L141 45 SEA FILE-HCAPPIUS ABB-ON PIU-ON L140 AND TRANSITION TEMP?

L142 66 SEA FILE-HCAPPIUS ABB-ON PIU-ON L140 AND TEMPERATURE?

L143 66 SEA FILE-HCAPPIUS ABB-ON PIU-ON L140 AND TEMPERATURE?

L144 55 SEA FILE-HCAPPIUS ABB-ON PIU-ON (L143 OR L144) AND ?TRANSITION

L145 ?

L146 55 SEA FILE-HCAPPIUS ABB-ON PIU-ON (L142 OR L145)

L147 54 SEA FILE-HCAPPIUS ABB-ON PIU-ON L146 NOT (L72 OR L116)

L148 37 SEA FILE-HCAPPIUS ABB-ON PIU-ON L147 (L) (PREP OR PROC OR

L149 RACT)/RL

L150 54 SEA FILE-HCAPPIUS ABB-ON PIU-ON (L147 OR L148)

L151 68 SEA FILE-HCAPPIUS ABB-ON PIU-ON (L149 OR L135 OR L133 OR L141

L152 OR L138)

L153 68 SEA FILE-HCAPPIUS ABB-ON PIU-ON L150 NOT (L72 OR L116)

L154 55 SEA FILE-HCAPPIUS ABB-ON PIU-ON L151 AND (PY<2003 OR AY<2003

L155 OR PRY<2003)

=> d ibib abs hitind retable l152 tot

L152 ANSWER 1 OF 55 HCAPPIUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2003:10348 HCAPPIUS Full-text

DOCUMENT NUMBER: 138:238508

TITLE: Synthesis and properties of poly(aryl ketone)

containing bis(phthalazinone), and methylene moieties

containing bis(phthalazinone), and methylene moieties

Zhang, Shaoyin; Jian, Xigao; Xiao, Shude; Wang,

Huiming; Zhang, Jie

DEPT. OF POLYMER SCIENCE & MATERIALS, DALIAN UNIV. OF

TECHNOLOGY, DALIAN, 116012, PEOP. REP. CHINA

SOURCE: Gaofenzi Xuebao (2002), (6), 842-845

PUBLISHER: CODEN: GAXUE9; ISSN: 1000-3304  
DOCUMENT TYPE: Keue Chubanshe  
LANGUAGE: Chinese

AB A new biphenol-like monomer, 4,4'-methylenebis[4-(1,4-phenylene)- phthalazin-1(2H)-one] was synthesized from phthalic anhydride and diphenylmethane in two steps. In the first step, Friedel-Crafts reaction was carried out in 1,2-dichloroethane between diphenylmethane and phthalic anhydride. The obtained product was used in the second step with hydrazine monohydrate added into its solution, followed by recrystallization in acetic acid. The m.p. showed by differential scanning calorimetry of the bis(phthalazinone) monomer was 338.1°C. The overall yield of the biphenol-like monomer was 60%. A new polyphthalazinone was prepared from 4,4'-difluorodiphenylketone (DFK) and 4,4'-methylenebis[4-(1,4-phenylene)-phthalazin-1(2H)-one] by solution polycondensation in N-methyl-2-pyrrolidone (NMP) with anhydrous K<sub>2</sub>CO<sub>3</sub> as a catalyst. High mol. weight polymer was formed in 8 h at 190°C. The polymer was refined by precipitation from its 15% NMP solution with methanol as the precipitating agent. The powder of the polymer was dried in a vacuum oven under 120°C for 48 h and then under 200°C for 4 h. The intrinsic viscosity of the polymer was 0.58 dL/g in NMP at 25°C. The polymer showed high glass transition temperature (T<sub>g</sub>) at 258°C by DSC. The decomposition temperature occurred at 431°C. The solubility of the polymer was investigated at room temperature. The polymer was soluble in NMP, m-cresol and partially soluble in chloroform, and insol. in N,N-dimethylacetamide (DMAC) and DMSO. The methylene group and bis(phthalazinone) structure in the backbone of the polymer contribute much to the good solubility, and the rigid structure of bis(phthalazinone) retains its good thermal properties.

CC 35-5 (Chemistry of Synthetic High Polymers)

IT Glass transition temperature

Solubility

Thermal stability

Viscosity

(Synthesis and properties of poly(aryl ketone) containing bis(phthalazinone) and methylene moieties)

IT 85-44-9, Phthalic anhydride

RL: RCT (Reactant); RACT (Reactant or reagent)

(reaction with diphenylmethane, then with hydrazine monohydrate in synthesis of monomer)

IT 101-81-5, Diphenylmethane

RL: RCT (Reactant); RACT (Reactant or reagent)

(reaction with phthalic anhydride, then with hydrazine monohydrate in synthesis of monomer)

IT 7803-57-8, Hydrazine monohydrate

RL: RCT (Reactant); RACT (Reactant or reagent)

(reaction with products from diphenylmethane and phthalic anhydride in synthesis of monomer)

LI52 ANSWER 2 OF 55 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2042:290354 HCAPLUS Full-text

DOCUMENT NUMBER: 137:109031

TITLE: x-ray diffraction and molecular simulation study of the crystalline and liquid states of succinic anhydride

AUTHOR(S):

CORPORATE SOURCE:

SOURCE:

Ferrètti, Valeria; Galli, Paola; Gavezotti, Angelo  
Dipartimento di Chimica, Università di Ferrara,  
Ferrara, Italy  
Chemistry--A European Journal (2002), 8(7),  
1710-1718  
CODEN: CEUJED; ISSN: 0947-6539.

PUBLISHER: Wiley-VCH Verlag GmbH  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB The crystal structure of succinic anhydride was studied at five temps. between 100 K and the m.p. by single-crystal x-ray diffraction. The temperature dependence of mol. libration tensors was determined. Intermol. interactions, in particular through unusually close mol. - mol. contacts, are discussed, with a detailed calcn. of electrostatic energies. A method for the adaptation of existing crystal force fields to mol. dynamics was developed; the adapted force field was used to study mol. motion and rotational diffusion with increasing temperature. Equilibration of the crystalline system becomes impossible at a temperature very close to the exptl. melting temperature, where a sudden transition to the liquid state occurs, and a partial kinetic picture of the melting process is obtained. After validation of the force field against exptl. crystal data, the state equation of the liquid was predicted. Enthalpies of sublimation, melting, and vaporization were calculated. The dynamics of a solution of succinic anhydride in a nonpolar solvent was simulated, for a discussion of the aggregation process leading to demixing and to crystal nucleation.

CC 22-13 (Physical Organic Chemistry)

Section cross-reference(s): 65, 75

ST x ray diffraction cryst liq succinic anhydride

crystallog

Force

(crystal force field; x-ray diffraction and mol. simulation study of crystalline and liquid states of succinic anhydride)

IT Anhydrides

RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process)

(crystallog); x-ray diffraction and mol. simulation study of

crystalline and liquid states of succinic anhydride)

IT Mixing

(demixing; x-ray diffraction and mol. simulation study of crystalline and liquid states of succinic anhydride)

IT Simulation and Modeling

(mol. dynamics; x-ray diffraction and mol. simulation study of crystalline

and liquid states of succinic anhydride)

IT Correlation function

Diffusion

(rotational; x-ray diffraction and mol. simulation study of crystalline and liquid states of succinic anhydride)

IT Liquids

(state; x-ray diffraction and mol. simulation study of crystalline and

states of succinic anhydride)

IT Heat capacity

(vibrational; x-ray diffraction and mol. simulation study of crystalline

and liquid states of succinic anhydride)

IT Aggregation

Crystal nucleation

Crystal structure

Density

Diffusion

Electrostatic potential

Evaporation enthalpy

Fusion enthalpy

Kinetic theory

Liquid structure

Melting

Molar volume  
Molecular association  
Molecular crystals  
Molecular dynamics  
Molecular libration  
Molecular structure  
Potential energy  
Potential well  
Sublimation enthalpy  
Thermal expansion  
Total energy

Van der Waals potential

(x-ray diffraction and mol. simulation study of crystalline and liquid

states

of succinic anhydride)

IT 108-30-5, Succinic anhydride, properties

RU: PEP (Physical, engineering or chemical process); PRP (Properties); PVP (Physical process); PROC (Process)

(crystallog.; x-ray diffraction and mol. simulation study of crystalline and liquid states of succinic anhydride)

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Frisch, M	1998			Gaussian 98, Revision	
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van Gunsteren, W  
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Williams, D  
Yan, Y

1152 ANSWER 3 OF 55 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2002:232775 HCAPLUS Full-text

DOCUMENT NUMBER: 138:123018

TITLE: Phase behavior and miscibility in blends of poly(sebacic anhydride)/poly(ethylene glycol)

AUTHOR(S): Chan, Cheng-Kuang; Chu, I-Ming

CORPORATE SOURCE: Department of Chemical Engineering, National Tsing Hua University, Taichung, Hsinchu, 30043, Taiwan

SOURCE: Biomaterials (2002), 23(11), 2393-2398

CODEN: BIMADU; ISSN: 0142-9612

PUBLISHER: Elsevier Science Ltd.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB In this research, poly(sebacic anhydride) was synthesized via melt-condensation. The polymer was then blended with poly(ethylene glycol) in various ratios by solvent casting, to obtain the desired polymer blends. A differential scanning calorimeter was employed to investigate the crystalline behavior of the blends. Blends with under 10% poly(ethylene glycol) were found to consist of two partially miscible polymers in the amorphous phase. This compatibility of the two polymers may induce the crystallization of the poly(sebacic anhydride) component from decreasing the glass transition temperature of the poly(sebacic anhydride) component in the blending system due to the presence of poly(ethylene glycol) chain segments. Furthermore, phase separation occurred and the crystallinity of poly(sebacic anhydride) diminished when at least 20% poly(ethylene glycol) was present in the blends. These results were verified by the variation in the absorptions of carbonyl groups in IR spectra; these spectra exhibit the changes in crystallinity of poly(sebacic anhydride) in the blends.

CC 36-3 (Physical Properties of Synthetic High Polymers)

ST Section cross-reference(s): 63

IT phase miscibility blend polysebacic anhydride PEG

Crystallinity

Crystallization

Fusion enthalpy

Glass transition

Miscibility

Phase separation

(phase behavior and miscibility in blends of poly(sebacic anhydride)/poly(ethylene glycol))

Polyoxyalkylenes, properties

RU: PRP (Properties)

(phase behavior and miscibility in blends of poly(sebacic anhydride)/poly(ethylene glycol))

Polyanhydrides

RU: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)

(phase behavior and miscibility in blends of poly(sebacic anhydride)/poly(ethylene glycol))



IT 25322-68-3, Peg

RL: PRP (Properties)

(phase behavior and miscibility in blends of poly(sebacic anhydride)/poly(ethylene glycol))

IT 26913-47-3P, Poly(sebacic anhydride) SRU 28803-92-1P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)

(phase behavior and miscibility in blends of poly(sebacic anhydride)/poly(ethylene glycol))

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Domb, A	1993	131	1275	J Polym Sci: Polym C	HCAPLUS
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L152 ANSWER 4 OF 55 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2002:96134 HCAPLUS Full-text

DOCUMENT NUMBER: 136:270905

TITLE:

Novel Superstructure of Nondiscoid Mesogens: Uneven-Parallel Association of Half-Disk Molecules, 3,4,5-Trialkoxybenzoic Anhydrides, to a Columnar Structure and Its One-Directionally Geared Interdigitation

AUTHOR(S):

Kishikawa, Keiki; Furusawa, Shigetaka; Yamaki, Takahiro; Kohmoto, Shigeo; Yamamoto, Makoto; Yamaguchi, Kentaro

CORPORATE SOURCE: Department of Materials Technology, Faculty of Engineering, Chiba University, Inage-ku, Chiba, 263-8522, Japan

SOURCE: Journal of the American Chemical Society (2002

), 124(8), 1597-1605

CODEN: JACSAT; ISSN: 0002-7863

American Chemical Society

Journal

English

PUBLISHER:

DOCUMENT TYPE:

LANGUAGE:

AB Compact and simple nondiscoid mesogens, trialkoxybenzoic anhydrides 2-11

(C12H25, n-C14H29, n-C16H33, and (S)- and (R)-3,7-dimethyloctyl) were designed

and synthesized, and their superstructures were studied by polarized light

microscopy, DSC, calcd. (M2 and AM1), CD spectroscopy, and x-ray diffraction. As the result, in the cases of 5-9 and 11, the half-disk mols. in the liquid crystal phases were self-assembled by the dipole-dipole interaction between their carbonyl groups to a column in which the mols. were piled up in an alternately antiparallel manner, and the columns were interdigitated each other. The observed interdigitations were highly directional in the perpendicular direction to the column axis. In the case of compound 11 which has (S)- or (R)-3,7-dimethyloctyl groups, a helical organization of the mols. in the column was estimated from the peaks in the CD spectra. This is the 1st report of a 1-directionally interdigitated columnar phase, and these compounds are the 1st liquid crystalline acid anhydrides. A -CO-O-CO- moiety is useful as a polar junction in liquid crystalline compds.

CC 75-11 (Crystallography and Liquid Crystals)

ST Superstructure nondiscoid mesorphism alkoxybenzoic anhydride

deriv

IT Supramolecular structure

(in trialkoxybenzoic anhydride liquid crystals)

IT Liquid crystals

(novel superstructure of nondiscoid mesogens: uneven-parallel association

of half-disk mols., trialkoxybenzoic anhydrides, to columnar

structure and one-directionally geared interdigitation)

IT Circular dichroism

(of trialkoxybenzoic anhydride liquid crystals)

IT Molecular structure

(of trimethoxybenzoic anhydride)

IT Liquid crystals

(derivs.); of trialkoxybenzoic anhydride

IT 251972-29-9P 405290-06-4P 405290-07-5P 405290-08-6P 405290-09-7P

405290-10-0P 405290-12-2P 405290-13-3P

RL: PEP (Physical, engineering or chemical process); PRP (Properties); SPN

(Synthetic preparation); PREP (Preparation); PROC

(Process)

(Preparation and liquid crystal properties of)

IT 405290-04-2P 405290-05-3P 405290-11-1P

RL: PEP (Physical, engineering or chemical process); PRP (Properties); SPN

(Synthetic preparation); PREP (Preparation); PROC

(Process)

(Preparation and phase transition temps. of)

IT 1719-88-6P

RL: PEP (Physical, engineering or chemical process); PRP (Properties); SPN

(Synthetic preparation); PREP (Preparation); PROC

(Process)

(Preparation, phase transition temps. and crystal

structure of)

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Boden, N	1993	115	1851	Liq Cryst	HCAPLUS



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Creagh, D	11992	10	International Tables	HCAPUS
Deng, H	11974	119	International Tables	HCAPUS
Deschenaux, R	11999	1120	J Am Chem Soc	HCAPUS
Deschenaux, R	11999	118	Organometallics	HCAPUS
Destrade, C	11979	103	J Phys Colloq	HCAPUS
Destrade, C	11981	171	Imol Cryst Liq Cryst	HCAPUS
Destrade, C	11984	1106	Imol Cryst Liq Cryst	HCAPUS
Douce, L	11999	1	Chem Commun	HCAPUS
Engelkamp, H	11999	284	Science	HCAPUS
Frank, F	11980	41	J Phys (France)	HCAPUS
Fujiki, M	12000	1122	J Am Chem Soc	HCAPUS
Fujitsu Ltd	12000	1122	WINMOPAC Ver 3	HCAPUS
Goldmann, D	12000	139	Angew Chem, Int Ed	HCAPUS
Goltnier, C	11993	132	Angew Chem, Int Ed	HCAPUS
Gregg, B	11997	1134	J Chem Soc Chem Comm	HCAPUS
Henderson, P	11995	118	Liq Cryst	HCAPUS
Ibers, J	11964	17	Iacta Crystallogr	HCAPUS
Klin, B	12001	142	Tetrahedron Lett	HCAPUS
Kishikawa, K	11999	111	Chem Mater	HCAPUS
Kleppinger, R	11995	134	Angew Chem, Int Ed	HCAPUS
Kleppinger, R	11997	1119	J Am Chem Soc	HCAPUS
Kobayashi, Y	11997	160	Bull Chem Soc Jpn	HCAPUS
Lai, C	11992	1114	J Am Chem Soc	HCAPUS
Lee, M	11998	1120	J Am Chem Soc	HCAPUS
Leij, F	11992	1121	Liq Cryst	HCAPUS
Levitsky, I	12000	1122	J Am Chem Soc	HCAPUS
Maliniak, A	11993	197	J Phys Chem	HCAPUS
Malthete, J	11992	14	Adv Mater	HCAPUS
Malthete, J	11995	146	J Phys Lett (Paris)	HCAPUS
Malthete, J	11993	113	Liq Cryst	HCAPUS
Matsunaga, Y	11996	1141	Imol Cryst Liq Cryst	HCAPUS
Matsuura, A	12000	1	MOS-F calculation pr	HCAPUS
Molecular Structure Cor	11992	1	Texsan:Crystal Struc	HCAPUS
Mukkamala, R	11996	1118	J Am Chem Soc	HCAPUS
Pavlovski, G	11980	1	Synthesis	HCAPUS
Pegenau, A	11999	15	Chem Eur J	HCAPUS
Percec, V	11999	1119	Chem Eur J	HCAPUS
Percec, V	11999	15	Chem Eur J	HCAPUS
Percec, V	11996	1118	J Am Chem Soc	HCAPUS
Piechocki	11993	115	Liq Cryst	HCAPUS
Reppy, M	12001	1123	J Am Chem Soc	HCAPUS
Serrette, A	11994	16	Chem Mater	HCAPUS
Shimizu, Y	11991	1	Chem Lett	HCAPUS
Simmerer, J	11996	18	Adv Mater	HCAPUS
Simon, J	11982	1104	J Am Chem Soc	HCAPUS
Snatzke, G	11979	118	Angew Chem, Int Ed	HCAPUS
Stewart, J	11989	110	J Comput Chem	HCAPUS
Suarez, M	11998	1120	J Am Chem Soc	HCAPUS
Tanaka, S	11997	152	J Org Chem	HCAPUS
Trzaska, S	11998	110	Chem Mater	HCAPUS
van de Craats, A	11996	18	Adv Mater	HCAPUS
van der Pol, J	11989	16	Liq Cryst	HCAPUS

Yearley, D	12000	1122	11684	J Am Chem Soc	HCAPUS
Zheng, H	11995	17	12067	Chem Mater	HCAPUS
Zheng, H	11995	17	12067	Chem Mater	HCAPUS
Zheng, H	11996	18	1907	Chem Mater	HCAPUS
L152 ANSWER 5 OF 55	HCAPUS	COPYRIGHT 2007 ACS on STN			
ACCESSION NUMBER:	2001:733361	HCAPUS	Full-text		
DOCUMENT NUMBER:	136:232787				
TITLE:	In-situ composites based on liquid <b>crystalline</b> polyester-polyamide-maleic <b>anhydride</b> -styrene copolymer blends. 1. Compatibilizing effects of maleic <b>anhydride</b> -styrene copolymer on liquid <b>crystalline</b> polyester-polyamide blends				
AUTHOR(S):	Xie, Xiaolin; Li, R. K. Y.; Fjhang, S. C.				
CORPORATE SOURCE:	Dep. Chem., Huazhong Univ. Science and Technol., Wuhan, 430074, Peop. Rep. China				
SOURCE:	Caillao Yanjiu Xuebao (2001), 25(3), 348-352				
PUBLISHER:	Caillao Yanjiu Xuebao Bianjibu				
LANGUAGE:	Chinese				
AB	Vectra A 950, PA 6, and maleic <b>anhydride</b> -styrene copolymer (I) were blended and injection molded. The polyester was esterified with I and the polyamide was amidated with I, thus I improved the compatibility of the 2 resins. The interaction between the 2 resins was enhanced, the viscosity of the melt was increased, the glass <b>transition temp.</b> were shifted toward each other, the dispersibility of the polyester in PA 6 was improved, and the interfacial adhesion was increased.				
CC	36-6 (Physical Properties of Synthetic High Polymers)				
ST	Section cross-reference(s): 75				
IT	liq cryst polyester polyamide blend compatibilizer; maleic <b>anhydride</b> styrene copolymer compatibilizer				
IT	IR spectroscopy				
IT	(fourier-transform; in-situ composites based on liquid <b>crystalline</b> polyester-polyamide-maleic <b>anhydride</b> -styrene copolymer blends and compatibility thereof)				
IT	Amidation				
IT	Crosslinking				
IT	Esterification				
IT	Glass <b>transition temperature</b>				
IT	Liquid crystals, polymeric				
IT	Polymer blend compatibilizers				
IT	Scanning electron microscopy				
IT	(in-situ composites based on liquid <b>crystalline</b> polyester-polyamide-maleic <b>anhydride</b> -styrene copolymer blends and compatibility thereof)				
IT	Polyamides, properties				
IT	Polymer blends				
IT	RI: POF (Polymer in formulation); PRP (Properties); USES (Uses)				
IT	(in-situ composites based on liquid <b>crystalline</b> polyester-polyamide-maleic <b>anhydride</b> -styrene copolymer blends and compatibility thereof)				
IT	Molding of plastics and rubbers				
IT	(injection; in-situ composites based on liquid <b>crystalline</b> polyester-polyamide-maleic <b>anhydride</b> -styrene copolymer blends and compatibility thereof)				
IT	Polymer morphology				
IT	(spherulitic; in-situ composites based on liquid <b>crystalline</b> polyester-polyamide-maleic <b>anhydride</b> -styrene copolymer blends and compatibility thereof)				

- IT Complex modulus  
(can 5; in-situ composites based on liquid **crystalline** polyester-polyamide-maleic **anhydride**-styrene copolymer blends and compatibility thereof)
- IT 81843-52-9, Vectra A 950  
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)  
(Vectra A 950; in-situ composites based on liquid **crystalline** polyester-polyamide-maleic **anhydride**-styrene copolymer blends and compatibility thereof)
- IT 9011-13-6, Maleic **anhydride**-styrene copolymer  
RL: MOA (Modifier or additive use); USES (Uses)  
(in-situ composites based on liquid **crystalline** polyester-polyamide-maleic **anhydride**-styrene copolymer blends and compatibility thereof)
- IT 25038-54-4, PA 6, properties  
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)  
(in-situ composites based on liquid **crystalline** polyester-polyamide-maleic **anhydride**-styrene copolymer blends and compatibility thereof)
- IT 403604-65-9P,  $\epsilon$ -Caprolactam-p-hydroxybenzoic acid-6-hydroxy-2-naphthoic acid-maleic **anhydride**-styrene copolymer  
RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); **PREP** (**Preparation**); USES (Uses)  
(in-situ composites based on liquid **crystalline** polyester-polyamide-maleic **anhydride**-styrene copolymer blends and compatibility thereof)
- LI52 ANSWER 6 OF 55 HCAPLUS COPYRIGHT 2007 ACS on STN  
ACCESSION NUMBER: 2001:643772 HCAPLUS Full-text  
DOCUMENT NUMBER: 135:344853  
TITLE: Synthesis and characterization of 3,5-diaminobenzoic-4'-biphenyl ester and polyimide with liquid crystalline side-chain  
AUTHOR(S): Fan, Haojun; Gu, Yi; Xie, Meili  
CORPORATE SOURCE: State Key Lab. Polymer Engineer, Sichuan Univ., Chengdu, 610065, Peop. Rep. China  
SOURCE: GaoFenzi Xuebao (2001), (4), 494-498  
CODEN: GAXUE9; ISSN: 1000-3304  
PUBLISHER: Kexue Chubanshe  
DOCUMENT TYPE: Journal  
LANGUAGE: Chinese  
AB A novel liquid crystalline side-chain in-situ self-reinforced polyimide (PI) film material was prepared by polymerization of 4'-biphenyl 3,5-diaminobenzoate, 4,4'-oxydiphthalic **anhydride** and 4,4'-oxydianiline and characterized by DSC, TGA, WAXD and polarized optical microscopy. Properties of polyimides with mesogenic units, such as mol. weight, solubility, thermal stability and tensile strength depended strongly on the content of mesogenic units. The mol. weight decreased and the solubility increased with the increase of mesogenic units level. Due to the in situ self-reinforcement of liquid crystal side-chains, the mech. properties of PIs were greatly enhanced, for example, the maximum improvement of tensile strength and modulus reach 270% and 300%, resp. TGA study indicates that the 5% weight loss **temperature** of PIs was >520°C. Under polarized optical microscopy, these PIs exhibit liquid crystal behaviors at a high **temperature** range and exhibit nematic phase. The side-chain liquid crystalline PIs also exhibit good solubility
- CC 33-5 (Chemistry of Synthetic High Polymers)  
Section cross-reference(s): 75  
ST biphenyl diaminobenzoate polyether polyimide liq crystal; oxydianiline polyether polyimide liq crystal; oxydiphthalic **anhydride** polyether polyimide liq crystal

- IT Polyimides, preparation  
RL: PRP (Properties); SPN (Synthetic preparation); **PREP** (**Preparation**)  
(polyether-; preparation and characterization of biphenyl benzoate-containing)
- IT Polyethers, preparation  
RL: PRP (Properties); SPN (Synthetic preparation); **PREP** (**Preparation**)  
(polyimide-; preparation and characterization of biphenyl benzoate-containing)
- IT **Glass transition temperature**  
Liquid crystals, polymeric  
Tensile strength  
(preparation and characterization of biphenyl benzoate-containing polyether-polyimides)
- IT 99-34-3, 3,5-Dinitrobenzoic acid  
RL: RCT (Reactant); **RAC** (**Reactant or reagent**)  
(chlorination of)
- IT 371776-12-4P, 4'-Biphenyl 3,5-diaminobenzoate-4,4'-oxydianiline-4,4'-oxydiphthalic **anhydride** copolymer  
RL: PRP (Properties); SPN (Synthetic preparation); **PREP** (**Preparation**)  
(preparation and characterization of liquid-crystalline)
- IT 136931-59-2P  
RL: RCT (Reactant); SPN (Synthetic preparation); **PREP** (**Preparation**); **RAC** (**Reactant or reagent**)  
(preparation and polymerization with oxydiphthalic **anhydride** and oxydianiline)
- IT 178274-12-9P  
RL: RCT (Reactant); SPN (Synthetic preparation); **PREP** (**Preparation**); **RAC** (**Reactant or reagent**)  
(preparation and reduction of)
- IT 92-69-3, 4-Hydroxybiphenyl  
RL: RCT (Reactant); **RAC** (**Reactant or reagent**)  
(reaction with dinitrobenzoyl chloride)
- LI52 ANSWER 7 OF 55 HCAPLUS COPYRIGHT 2007 ACS on STN  
ACCESSION NUMBER: 2001:389418 HCAPLUS Full-text  
DOCUMENT NUMBER: 135:133160  
TITLE: Liquid crystalline copolymers with cholesteryl as mesogenic group  
AUTHOR(S): Filip, D.; Simionescu, C. I.; Macocinschi, D.  
CORPORATE SOURCE: "Petru Poni" Institute of Macromolecular Chemistry, Iasi, 6600, Rom.  
SOURCE: Materials Research Bulletin (2001), 36(7-8), 1455-1461  
CODEN: MREUAC; ISSN: 0025-5408  
PUBLISHER: Elsevier Science Inc.  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
AB In this paper, the synthesis and characterization of copolymers obtained from free-radical copolym. of maleic **anhydride** with mesogenic 1-alkene and with mesogenic acrylates are presented. The mesomorphic properties were investigated by differential scanning calorimetry (DSC) and polarizing optical microscopy.
- CC 35-4 (Chemistry of Synthetic High Polymers)  
Section cross-reference(s): 75  
ST maleic **anhydride** cholesteryl liq **cryst** copolymer  
IT **Glass transition temperature**  
Solubility

IT 352636-67-0P 352636-69-2P 352636-71-6P  
 RL: PRP (Properties); SPN (Synthetic preparation); **PREP**  
 (Preparation)

(liquid crystalline copolymers with cholesteryl as mesogenic group)  
 (liquid crystalline copolymers with cholesteryl as mesogenic group)

RETABLE

Referenced Author	Year	VOL	PG	Referenced Work	Referenced
(RAU)	(RPY)	(RVL)	(RPG)	(RWK)	File

Anon	1984	14	1715	Plenum	
Itch, M	1992	130	1803	J Polym Sci, Polym CHCAPUS	
Krigbaum, W	1985	141	1105	J Appl Polym Sci AppHCAPUS	
Leiva, A	1998	137	145	J Macromol Sci-Phys	
Noel, C	1991	116	155	Prog Polym Sci	
Pertec, V	1987	125	1405	J Polym Sci Polym CHHCAPUS	
Simionescu, C	1985		1174	Chimie Macromolecul	
Stevens, H	1984	117	1851	Macromolecules	

LI52 ANSWER 8 OF 55 HCAPUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 2001:329592 HCAPUS Full-text  
 DOCUMENT NUMBER: 135:108632

TITLE: A paint removal concept with side-chain liquid crystalline polymers as primer material

AUTHOR(S): van der Wielen, M. W. J.; Cohen Stuart, M. A.; Fleer, G. J.; Nieuwhof, R. P.; Marcelis, A. T. M.; Sudholter, E. J. R.

CORPORATE SOURCE: Laboratory of Physical Chemistry and Colloid Science, Wageningen University, Wageningen, 6703 HB, Neth.

SOURCE: Progress in Organic Coatings (2001), 41(1-3), 157-165  
 CODEN: POGCAT; ISSN: 0300-9440

PUBLISHER: Elsevier Science S.A.  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English

AB A new paint removal concept is introduced making use of a polymer primer layer with a sharp softening **temperature**. For this, a new class of side-chain liquid crystalline polymers with polar moieties in the backbone has been developed and studied in thin films. These polymers form lamellar-ordered mesophases and contain adhesion-enhancing moieties, which can provide protection against corrosion. Furthermore, the polymers possess phase **transitions** which are accompanied by drastic changes in the mech. properties. When the viscosity of a primer film abruptly drops it will start to flow which makes it possible to remove the coating layer as an intact film, simply by pulling the coating off the primer layer. Since the various synthesized polymers all possess different **transition temperatures**, we can choose the most convenient polymer on the basis of the desired **temperature dependence**.

CC 42-10 (Coatings, Inks, and Related Products)  
 Section cross-reference(s): 35, 75  
 ST liq cryst polymer primer paint removal; maleic **anhydride** copolymer liq **cryst viscosity temp**; polyketone liq **cryst primer paint removal**; polymethacrylate liq **cryst primer paint removal**

IT Molecular structure-property relationship  
 (liquid crystalline phase **transition**); paint removal concept with side-chain liquid crystalline polymers as primers with sharp softening **temp.**)

IT Phase **transition**  
 (liquid crystalline; paint removal concept with side-chain liquid crystalline polymers as primers with sharp softening **temp.**)

IT Liquid crystals, polymeric  
 Melt viscosity  
 Paints  
 Primers (paints)  
 (paint removal concept with side-chain liquid crystalline polymers as primers with sharp softening **temp.**)

IT Polyketones  
 RL: PRP (Properties); SPN (Synthetic preparation); **PREP**  
 (Preparation)

(paint removal concept with side-chain liquid crystalline polymers as primers with sharp softening **temp.**)

IT Polymer chains  
 (side; paint removal concept with side-chain liquid crystalline polymers as primers with sharp softening **temp.**)

IT Polymer morphology  
 (surface; paint removal concept with side-chain liquid crystalline polymers as

as primers with sharp softening **temp.**)

IT 68317-10-2P 255056-27-0P 328241-93-6P 328241-94-7P 328241-95-8P  
 328241-96-9P 349656-04-8P 349656-05-9P 349656-06-0P  
 349656-07-1P 349656-08-2P 349656-09-3P 349656-10-6P 349656-11-7P  
 349656-12-8P 349656-13-9P 349656-14-0P 349656-15-1P 349656-16-2P  
 349656-17-3P 349656-18-4P 349656-19-5P 349656-20-8P 349656-21-9P  
 350008-68-3P 350008-69-4P 350008-70-7P 350008-71-8P 350008-72-9P  
 RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); **PREP** (Preparation); USES (Uses)  
 (paint removal concept with side-chain liquid crystalline polymers as primers with sharp softening **temp.**)

RETABLE

Referenced Author	Year	VOL	PG	Referenced Work	Referenced
(RAU)	(RPY)	(RVL)	(RPG)	(RWK)	File

Bistac, S	1996	156	1205	J Adhesion	
Davidson, P	1996	121	1893	Prog Polym Sci	
Frost, A	1974	147	1731	Zh Prikl Khim	
Gahde, J	1996	158	1243	J Adhesion	
Jentsch, W	1997	111	1861	J Adhesion Sci TechnHCAPUS	
Kurbanova, R	1997	111	1105	J Adhesion Sci TechnHCAPUS	
Magnin, M	1993			WO 93/012343	
Nieuwhof, R	1999	1200	12494	Macromol Chem Phys	
Nieuwhof, R	2000	1201	12394	Macromol Chem Phys	
Nieuwhof, R	2000	1201	12484	Macromol Chem Phys	
Nieuwhof, R	1999	132	1398	Macromolecules	
Nieuwhof, R	1999	132	16499	Macromolecules	
Nieuwhof, R	1999			Thesis, Wageningen U	
Noirez, L	1998	180	1453	Phys Rev Lett	
Rubin, L	1999			IUS 5981007	
Springer, J	1995	114	1266	Environ Prog	
Thery, S	1996	156	115	J Adhesion	
van Krevelen, D	1990			Properties of Polyme	
van der Wielen, M	1999	111	1918	Adv Mater	
van der Wielen, M	1997	113	14762	Langmuir	
van der Wielen, M	1998	114	17065	Langmuir	
van der Wielen, M	2000	116	110137	Langmuir	
van der Wielen, M	1999	160	14252	Phys Rev E	
van der Wielen, M	1999			Thesis, Wageningen U	

Worlow, R 1992 | Rheological Techniqu

L152 ANSWER 9 OF 55 HCAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 2001:298519 HCAPLUS Full-text  
 DOCUMENT NUMBER: 135:77360  
 TITLE: Dielectric and IR Spectroscopy of the Macromolecular Reaction of Anhydridization in a Functionalized Side-Chain Liquid Crystalline Copolymer Containing Acrylic Acid Groups  
 AUTHOR(S): Zhukov, Sergei; Stuehn, Bernd; Borisova, Tamara; Barmatov, Evgenii; Barmatova, Marina; Shibaev, Valery; Kremer, Friedrich; Pissis, Polycarpos  
 CORPORATE SOURCE: Institut fuer Physik, Technische Universitat Ilmenau, Ilmenau, 98693, Germany  
 SOURCE: Macromolecules (2001), 34(11), 3615-3625  
 CODEN: MAMOBX; ISSN: 0024-9297  
 PUBLISHER: American Chemical Society  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 AB The **anhydride** formation reaction was studied in functionalized side-chain random liquid crystalline (LC) copolymers of 4-(4-cyanobiphenyl)-4'-yloxybutyl acrylate and acrylic acid (38 mol %). Heat treatment of the LC copolymer at 130° for 5-200 h resulted in formation of intra- and intermol. **anhydrides** and network structures causing an increase of the glass **transition** and clearing **temps**. The influence of annealing on the reorientational dynamics of the copolymers was studied by broad-band dielec. relaxation spectroscopy. The local dynamics of the side group involving spacer motion ( $\gamma$  relaxation) and mesogen rotation about the long axis ( $\beta$  relaxation) do not depend on the annealing time. At the same time, a considerable (more than 2 orders of magnitude) decrease in the relaxation rates of the cooperative  $\delta$  and  $\alpha$  processes was observed due to a gradual increase in the main-chain rigidity during annealing. The mol. mechanism of all relaxation processes is described.  
 CC 36-2 (Physical Properties of Synthetic High Polymers)  
 ST Section cross-reference(s): 35, 75  
 ST cyanobiphenyl acrylic acid LCP anhydridization heat treatment; network structure liq **crystal**; polymer acrylate **anhydride**; intramol **anhydride** formation LCP cyanobiphenylbutyl acrylate copolymer  
 IT Annealing  
 IT Dielectric loss  
 IT Liquid crystals, polymeric  
 IT Polymer networks  
 IT (dielec. loss and chain dynamics and **anhydride** formation upon annealing of cyanobiphenylbutyl acrylate side-chain liquid crystalline copolymer)  
 IT Polymer chains  
 IT (relaxation; dielec. loss and chain dynamics and **anhydride** formation upon annealing of cyanobiphenylbutyl acrylate side-chain liquid crystalline copolymer)  
 IT 196938-99-5, Acrylic acid-4-(4-cyanobiphenyl)-4'-yloxybutyl acrylate copolymer  
 IT RL: PEP (Physical, engineering or chemical process); PRP (Properties); **PROC (Process)**  
 IT (dielec. loss and chain dynamics and **anhydride** formation upon annealing of cyanobiphenylbutyl acrylate side-chain liquid crystalline copolymer)

RETABLE  
 Referenced Author | Year | VOL | PG | Referenced Work | Referenced

(RAU)	(RPY)	(RVL)	(RPG)	(RWK)	File
Andjalic, S	1998 131	18463	Macromolecules	HCAPLUS	HCAPLUS
Attard, G	1986 11	1253	Liq Cryst	HCAPLUS	HCAPLUS
Attard, G	1986 127	1185	Polymer	HCAPLUS	HCAPLUS
Attard, G	1990 131	1928	Polymer	HCAPLUS	HCAPLUS
Barmatov, E	1999 137	13215	J Polym Sci, Part A: Polym Sci	HCAPLUS	HCAPLUS
Barmatov, E	1997 123	1447	Liq Cryst	HCAPLUS	HCAPLUS
Barmatov, E	1999 126	1581	Liq Cryst	HCAPLUS	HCAPLUS
Barmatov, E	2000 1201	12597	Macromol Chem Phys	HCAPLUS	HCAPLUS
Barmatov, E	1999 120	1521	Macromol Rapid Commun	HCAPLUS	HCAPLUS
Barmatov, E	1998 140	11769	Polymer Sci	HCAPLUS	HCAPLUS
Barmatov, E	1998 140	1295	Polymer Sci	HCAPLUS	HCAPLUS
Bazin, C	1998 13	159	Mechanical and Thermol	HCAPLUS	HCAPLUS
Borisova, T	1998 199	12147	Macromol Chem Phys	HCAPLUS	HCAPLUS
Bormuth, F	1988 13	1881	Liq Cryst	HCAPLUS	HCAPLUS
Bormuth, F	1989 15	11549	Liq Cryst	HCAPLUS	HCAPLUS
Bormuth, F	1987 1153	1207	Mol Cryst Liq Cryst	HCAPLUS	HCAPLUS
Filippov, A	2000 142	1329	Polymer Sci	HCAPLUS	HCAPLUS
Fuoss, R	1941 63	1385	J Am Chem Soc	HCAPLUS	HCAPLUS
Gedde, U	1994 35	12056	Polymer	HCAPLUS	HCAPLUS
Glatz-Reichenbach, J	1994 127	11338	Macromolecules	HCAPLUS	HCAPLUS
Haase, W	1985 189	11229	Ber Bunsen-Ges Phys	HCAPLUS	HCAPLUS
Haase, W	1991 195	1050	Ber Bunsen-Ges Phys	HCAPLUS	HCAPLUS
Hellmark, C	1998 131	14531	Macromolecules	HCAPLUS	HCAPLUS
Kato, T	1997 1118	1969	Hydrogen-Bonded Syst	HCAPLUS	HCAPLUS
Kato, T	1995 198	1311	Macromol Symp	HCAPLUS	HCAPLUS
Klinbiel, R	1974	17651	J Am Chem Soc	HCAPLUS	HCAPLUS
Kremer, F	1989 122	14040	Macromolecules	HCAPLUS	HCAPLUS
Kresse, H	1982 13	1509	Macromol Chem, Rapid	HCAPLUS	HCAPLUS
Lezov, A			Liq Cryst, in press	HCAPLUS	HCAPLUS
Mano, J	1996 120	1201	Liq Cryst	HCAPLUS	HCAPLUS
Mano, J	1994 135	13561	Polymer	HCAPLUS	HCAPLUS
Mano, J	1994 135	15170	Polymer	HCAPLUS	HCAPLUS
Muller, M	1995 1273	138	Colloid Polym Sci	HCAPLUS	HCAPLUS
Muller, M	1995 128	16942	Macromolecules	HCAPLUS	HCAPLUS
Nikonorova, N	1993 135	130	Polymer Sci	HCAPLUS	HCAPLUS
Nikonorova, N	1997 139	1404	Polymer Sci	HCAPLUS	HCAPLUS
Novotna, E	1995 118	173	Liq Cryst	HCAPLUS	HCAPLUS
Paleos, C	1995 134	11696	Angew Chem, Int Ed E	HCAPLUS	HCAPLUS
Plate, N	1995		Macromolecular React	HCAPLUS	HCAPLUS
Roland, C	1994 127	14242	Macromolecules	HCAPLUS	HCAPLUS
Schonfeld, A	1993 1194	11149	Macromol Chem	HCAPLUS	HCAPLUS
Schonhals, A	1995 128	16254	Macromolecules	HCAPLUS	HCAPLUS
Schonhals, A	1998 131	19019	Macromolecules	HCAPLUS	HCAPLUS
Shibaev, V	1998 1276	1662	Colloid Polym Sci	HCAPLUS	HCAPLUS
Starkweather, H	1988 121	11798	Macromolecules	HCAPLUS	HCAPLUS
Vogel, K	1921 122	1645	Phys Z	HCAPLUS	HCAPLUS
Wetton, R	1965 161	12132	Trans Faraday Soc	HCAPLUS	HCAPLUS
Willbourn, A	1958 154	1717	Trans Faraday Soc	HCAPLUS	HCAPLUS
Williams, G	1994 135	11915	Polymer	HCAPLUS	HCAPLUS
Zentel, R	1985 118	1960	Macromolecules	HCAPLUS	HCAPLUS
Zentel, R	1986 1187	11915	Macromol Chem	HCAPLUS	HCAPLUS
Zentel, R	1989 1190	12869	Macromol Chem	HCAPLUS	HCAPLUS
Zhong, Z	1994 117	1199	Liq Cryst	HCAPLUS	HCAPLUS

L152 ANSWER 10 OF 55 HCAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 2001:2689 HCAPLUS Full-text  
 DOCUMENT NUMBER: 134:208242  
 TITLE: Highly ordered side-chain liquid-crystalline



IT miscibility, crystallization and melting behavior of)  
 9011-13-6D, Maleic anhydride-styrene copolymer, hydrolyzed  
 RL: PRP (Properties)  
 (blends with poly(ethylene oxide); miscibility, crystallization and melting  
 behavior of ionomers)

## RTABLE

Referenced Author (RAU)	Year	VOL	PG	Referenced Work (RWK)	Referenced File
Al-Salah, H	1992	145	11661	J Appl Polym Sci	HCAPLUS
Al-Salah, H	1994			[Polym Bull accepted]	
Al-Salah, H	1992	128	1323	Polym Int	HCAPLUS
Al-Salah, H	1997	142	1429	Polym Int	HCAPLUS
Al-Salah, H	1986	119	11143	Macromolecules	HCAPLUS
Alfonso, G	1979			[Adv Chem Ser 176]	
Anon	1994			[Macromolecular Comp]	
Brannock, G	1991	129	1413	J Polym Sci Polym Ph	HCAPLUS
Choi, K	1997	130	1509	Macromolecules	HCAPLUS
Dafieuw, G	1989	130	1267	Polym Commun	HCAPLUS
de Juana, R	1994	127	16980	Macromolecules	HCAPLUS
Jadoun, S	1977	110	1015	Macromolecules	HCAPLUS
Erdi, N	1964	119	1708	J Colloid Sci	HCAPLUS
Feng, H	1995	131	1243	Eur Polym J	HCAPLUS
Fox, T	1956	12	1123	Bull Am Phys Soc	HCAPLUS
Hara, M	1984	117	11335	Macromolecules	HCAPLUS
Hoffman, J	1962	166	113	J Res Natl Bur Stand	
Horizon, J	1986	124	169	J Polym Sci Polym Le	HCAPLUS
Inken, R	1976	116	1593	Polym Eng Sci	
Kim, J	1993	126	15256	Macromolecules	HCAPLUS
Koning, C	1993	134	14410	Polymer	HCAPLUS
Lazcano, E	1996	137	13603	Polymer	HCAPLUS
Li, X	1984	122	11331	J Polym Sci Polym Ph	HCAPLUS
Liberman, S	1984	122	12809	J Polym Sci Polym Ch	HCAPLUS
Lu, X	1992	125	16185	Macromolecules	HCAPLUS
Martuscelli, E	1984	125	11097	Polymer	HCAPLUS
Molnar, A	1992	125	15774	Macromolecules	HCAPLUS
Murayama, T	1978			[Dynamical Mechanical]	
Nedkov, E	1994	127	1327	J Macromol Sci Phys	HCAPLUS
Ng, C	1994	127	16942	Macromolecules	HCAPLUS
Ng, C	1996	129	12412	Macromolecules	HCAPLUS
Nishi, T	1975	18	1909	Macromolecules	HCAPLUS
Nishio, V	1990	128	1355	J Polym Sci Polym Ph	HCAPLUS
Ohno, N	1978	111	1947	Polym J	HCAPLUS
Painter, P	1997	130	1932	Macromolecules	HCAPLUS
Paul, D	1978			[Polymer Blends]	
Plante, M	1997	128	1567	Macromolecules	HCAPLUS
Plante, M	1997	130	12613	Macromolecules	HCAPLUS
Rutkowska, M	1984	117	1821	Macromolecules	HCAPLUS
Scott, R	1949	117	1279	Chem Phys	HCAPLUS
Silvestre, C	1987	128	11190	J Polymer	HCAPLUS
Smith, P	1983	121	1223	J Polym Sci Polym Le	HCAPLUS
Sulzberg, T	1970	18	12747	J Polym Sci Polym Ch	HCAPLUS
Utracki, L	1990			[Polymer Alloys and B]	
Xiang, M	1997	130	12313	Macromolecules	HCAPLUS
Xing, P	1997	130	12726	Macromolecules	HCAPLUS
Zhou, Z	1983	121	15951	J Polym Sci Polym Ph	HCAPLUS

LI52 ANSWER 12 OF 55 HCAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 1999:759910 HCAPLUS Full-text

DOCUMENT NUMBER: 132:93876

TITLE: Thermotropic behavior of side-chain liquid-crystalline copolymers from maleic anhydride and mesogen-containing methacrylates

AUTHOR(S): Nieuwhof, Rene P.; Marcelis, Antonius T. M.; Sudholter, Ernst J. R.

CORPORATE SOURCE: Lab. Organic Chemistry, Dep. Biomolecular Sciences, Research Center, Wageningen Univ., Wageningen, 6703 HB, Neth.

SOURCE: Macromolecular Chemistry and Physics (1999), 200(11), 2494-2500

PUBLISHER: CODEN: MCHPES; ISSN: 1022-1352

Wiley-VCH Verlag GmbH

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Side-chain liquid-crystalline copolymers (SCLCPs) were synthesized by copolymn. of maleic anhydride (MA) and mesogenic methacrylates. For copolymers with a hexyl spacer and methoxybiphenyl mesogens, smectic A1 and smectic E1 mesophases are observed. Furthermore, it was found that the isotropization temperature increases and the width of the monotropic smectic A1 mesophase decreases with increasing MA content. For methoxybiphenyl-containing copolymers with 25 mol% MA, the glass transition temperature decreases with increasing spacer length, whereas the isotropization temperature shows little dependence on spacer length, although a small odd-even effect is observed. For octyl or shorter spacers, these polymers exhibit a smectic E mesophase, whereas for longer spacers smectic B mesophases were observed. These mesophases are succeeded by a smectic A1 mesophase for SCLCPs with heptyl or longer spacers. SCLCPs with cyanoazobenzene mesogens exhibit only a smectic A1 mesophase, whereas SCLCPs with cyanobiphenyl mesogens are not liquid crystalline.

CC 36-2 (Physical Properties of Synthetic High Polymers)

Section cross-reference(s): 75

ST maleic anhydride mesogenic methacrylate polymer thermotropic;

crystal structure polymer

IT Crystal structure

Heat capacity

(d spacings; thermotropic behavior of side-chain liquid-crystalline copolymers from maleic anhydride and mesogen-containing methacrylates)

IT Liquid crystals, polymeric

(smectic; thermotropic behavior of side-chain liquid-crystalline

copolymers from maleic anhydride and mesogen-containing

methacrylates)

IT Entropy

(structural phase transition; thermotropic behavior of

side-chain liquid-crystalline copolymers from maleic

anhydride and mesogen-containing methacrylates)

IT 68317-10-2P 255056-27-0P 255056-28-1P 255056-25-2P 255056-30-5P

255056-31-6P 255056-32-7P 255056-33-8P 255056-34-9P 255056-35-0P

RL: PRP (Properties); SPN (Synthetic preparation); PREP

(Preparation)

(thermotropic behavior of side-chain liquid-crystalline copolymers

from maleic anhydride and mesogen-containing methacrylates)

RTABLE

Referenced Author Year VOL PG Referenced Work Referenced  
 (RAU) (RPY) (RVL) (RPG) (RWK) File

Alimoglu, A 1984 125 1342 Polymer HCAPLUS

108  
/553451 Page 108 of 163

1184<sup>a</sup> and prepared from p-hydroxybenzoic acid 528, 4,4'-dihydroxybiphenyl 126, terephthalic acid 112, and PET (intrinsic viscosity .apprx. 0.6 dl/g) 864 (100%<sup>a</sup>). The 100%<sup>a</sup> was prepared by the same procedure as the 100%<sup>a</sup> of the 0.5-mm thick pieces succinic anhydride were injection molded at 80 °C, giving 0.5-mm thick pieces showing fluidity 120 mm, impact resistance 6.0 kg.cm/cm<sup>2</sup>, surface smoothness good, and no cobwebbing, compared with 92, 3.5, 0.24, bad, and cobwebbing without the liquid crystalline polyester.

IC	C08L077-00	
ICM	C08L077-00	
ICS	C08L077-12; C08L077-06; C08K005-092	
ICI	C08L077-00, C08L077-12	
CC	37-6 (Plastics Manufacture and Processing)	
	Section cross-reference(s): 38	
ST	polyamide liq cryst polyester blend molding; <b>anhydride</b> fluidity control polyamide polyester blend; nylon blend impact resistant thin box; succinic <b>anhydride</b> fluidity control polyamide blend	
IT	Polyamides, uses	
	RU: DEV (Device component use); POF (Polymer in formulation); USES (Uses) (blends with liquid <b>crystalline</b> polyester and an <b>anhydride</b> )	

thin-walled  
box-type moldings therefrom)

IT  
Polyamides, uses  
RU: (Device component use); POF (Polymer in formulation); USES (Uses)  
DEV (Device with polyester and an amide-ide; polyamide resin  
composition containing a liquid-crystalline polyester and thin-walled box-  
type moldings  
therefrom)

IT Polyesters, uses  
RI: DEV (Device component use); POF (Polymer in formulation); USES (Uses)  
(liquid-crystalline, blends with polyamide and an **anhydride**;  
polyamide resin composition containing a liquid-crystalline polyester and  
thin-walled

IT Liquid crystals, polymeric (polyester, blends with polyamide and an anhydride; polyamide resin composition containing a liquid-crystalline polyester and thin-walled

box-type moldings therefrom) !  
 25038-54-4, Poly(linino[1-oxo-1,6-hexanediy])], uses  
 RL: DEV (Device component use); POF (Polymer in formulation); USES (Uses)  
 (blends with liquid **crystalline** polyester and an **anhydride**  
 ; polyamide resin composition containing a liquid-crystalline polyester and  
 thin-walled

box-type moldings therefrom)  
 91843-52-9, p-Hydroxybenzoic acid-2,6-dihydroxynaphthoic acid copolymer  
 124701-35-5, 4,4'-Dihydroxybiphenyl-ethylene glycol-p-hydroxybenzoic  
 acid-terephthalic acid block copolymer  
 acid-terephthalic acid block copolymer  
 RL: DEV (Device component use); POF (Polymer in formulation); USES (Uses)  
 (blends with polyamide and an anhydride; polyamide resin  
 composition containing a liquid-crystalline polyester and thin-walled box-  
 type moldings therefrom)

IT 32131-17-2, uses 250346-84-0  
 RL: DEV (Device component use); POF (Polymer in formulation); USES (Uses)  
 (blends with polyester and an anhydride; polyamide resin  
 composition containing a liquid-crystalline polyester and thin-walled box-  
 type moldings  
 therefrom)

IT 81-84-5, 1H, 3H-Naphtho[1,8-cd]pyran-1,3-dione 85-44-9,  
therefrom).  
Phthalic anhydride 108-30-5, uses 108-31-6,  
2,5-Furandione, uses

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1998 139 16385 Polymer HCAPLUS  
 1994 14 1705 HCAPLUS  
 1995 128 3617 Macromolecules HCAPLUS  
 1996 111 469 Liq Cryst HCAPLUS  
 1992 121 893 Prog Polym Sci HCAPLUS  
 1991 124 5695 Macromolecules HCAPLUS  
 1979 [The Molecular Physic] HCAPLUS  
 1993 126 539 Macromolecules HCAPLUS  
 1998 136 2669 J Polym Sci, Part A: HCAPLUS  
 1995 196 1669 Macromol Chem Phys HCAPLUS  
 1998 1837 45 J Macromol Sci-Phys HCAPLUS  
 1997 130 1257 Macromolecules HCAPLUS  
 1998 1127 115 Macromol Symp HCAPLUS  
 1999 132 1398 Macromolecules HCAPLUS  
 1998 180 1453 Macromolecules, subm HCAPLUS  
 1992 12 617 Phys Rev Lett HCAPLUS  
 1998 122 199 J Mater Chem HCAPLUS  
 1989 121 1658 Polym Bull (Berlin) HCAPLUS  
 1990 131 1658 Polymer HCAPLUS  
 1989 [Side Chain Liquid Cr] HCAPLUS  
 1997 122 601 Prog Polym Sci HCAPLUS  
 1993 1194 1125 Macromol Chem HCAPLUS  
 1992 [Liquid Crystalline a] HCAPLUS  
 1994 [Liquid Crystal Polym] HCAPLUS  
 1996 137 4307 Polymer HCAPLUS  
 1982 [Maleic Anhydride] HCAPLUS  
 1966 69 1230 Kobunshi Kagaku HCAPLUS  
 1997 113 4762 Langmuir HCAPLUS  
 1998 114 7065 Langmuir HCAPLUS

L152 ANSWER 13 OF 55 HCAPLUS COPYRIGHT 2007 ACS on STN  
 1999-736315 HCAPLUS Full-text  
 131:352124  
 Polyamide resin composition containing a  
 liquid-crystalline resin and thin-walled box-type  
 moldings therefrom  
 Umetsu, Hideyuki; Sugimura, Masahiro; Makabe, Yoshiaki  
 Toray Industries, Inc., Japan  
 Eur. Pat. Appl., 16 pp.  
 CODEN: EPXXDW  
 Patent  
 English

DOCUMENT TYPE:  
 LANGUAGE:  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 957132	A1	19991117	EP 1999-303721	19990512
EP 957132	B1	20040929		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
US 6121388	A	20000919	US 1999-287045	19990406
JP 2000034404	A	20000202	JP 1999-116561	19990423
PRIORITY APPLN. INFO.:				
A polyamide resin composition comprising 100 parts polyamide resin, 0.01-100 parts liquid-crystalline resin, and 0.01-5 parts acid anhydride is used for impact-resistant box-type moldings with thin-wall parts which account for 210% of the total surface area. Thus, pellets of a blend of 100 parts nylon 6 pellets (relative viscosity 2.70, m.p. 222°, terminal amino content 4.0 x 10 <sup>-6</sup> emv/g); 3 parts liquid crystalline polyester having transition temperature				



RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)

crystalline polyester and thin-walled box-type moldings containing a liquid- (fluidity control by; polyamide resin composition containing a liquid-

RETABLE

Referenced Author (RAU)	Year	VOL	PG	Referenced Work (RWK)	File
Kuraray Co Ltd	11997	1	JP 09012875 A	HCAPLUS	
Mazda	11993	1	JP 05086286 A	HCAPLUS	
Mazda Motor	11993	1	EP 0533650 A		
Mazda Motor	11993	1	EP 0566149 A	HCAPLUS	
Unitika Ltd	11991	1	EP 0438128 A	HCAPLUS	

L152 ANSWER 14 OF 55 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1999:575502 HCAPLUS Full-text

DOCUMENT NUMBER: 131:323010

TITLE: Modification of Side-Chain Liquid-Crystalline

Poly(maleic anhydride-alt-1-alkene)s with

Mesogen-Containing Alcohols

Nieuwhof, Rene P.; Koudijs, Arie; Marcellis, Antonius

T. M.; Sudhoelter, Ernst J. R.

Laboratory of Organic Chemistry Department of

Biomolecular Sciences, Wageningen University and

Research Center, Wageningen, 6703 HB, Neth.

Macromolecules (1999), 32(20), 6499-6506

CODEN: MAMOBX; ISSN: 0024-9297

American Chemical Society

Journal

English

AB

Side-chain liquid-crystalline copolymers from maleic anhydride and 1-alkenes carrying biphenyl mesogens have been modified by reaction of the anhydride moieties with different mesogenic alcs. to give maleic acid monoesters. FTIR and <sup>1</sup>H NMR showed high degrees of modification. Grafting methoxybiphenyl-containing alcs. having different spacer lengths onto methoxybiphenyl-containing polymers yielded polymers exhibiting smectic A mesophases with a variable degree of interdigitation. The glass transition temperature decreased with spacer length, whereas the isotropization temperature remained almost constant. Grafting arbenzene-containing alcs. onto methoxybiphenyl-containing copolymers yielded side-chain liquid-crystalline polymers exhibiting nematic mesophases. The effect of the 4'-azobenzene terminal group on the temperature window of the mesophase was CN > OMe > F > H. Grafting a cyanostilbene-containing alc. onto a methoxybiphenyl-containing copolymer resulted in a polymer that exhibited a smectic E mesophase with complete interdigitation of side chains. Introducing methoxybiphenyl mesogens into cyanobiphenyl-containing copolymers or vice versa resulted in polymers with smectic A mesophases. Furthermore, an increase in isotropization temp. was observed in comparison with polymers carrying only one type of mesogen. This indicates specific favorable interactions between unlike mesogens.

35-8 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 75

liq **cryst** maleic anhydride biphenylalkene copolymer

mesogen alc ester; smectic liq **cryst** maleic anhydride

biphenylalkene copolymer ester; nematic liq **cryst** maleic

anhydride biphenylalkene copolymer ester; cyanobiphenylalkene

maleic anhydride copolymer methoxybiphenyl alc ester liq **cryst**;

azobenzene alc ester liq **cryst** maleic anhydride

biphenylalkene copolymer; methoxybiphenyl alc ester liq **cryst**

maleic anhydride biphenylalkene copolymer

IT Differential scanning calorimetry

Entropy

Heat capacity

Liquid crystals, polymeric

Molecular structure-property relationship

Phase transition temperature

X-ray diffraction

(modification of side-chain liquid-crystalline alternating maleic

anhydride-1-alkene copolymers with mesogen-containing alcs.)

IT Microscopy

(polarizing; modification of side-chain liquid-crystalline

alternating maleic anhydride-1-alkene copolymers with

mesogen-containing alcs.)

IT 248254-67-3P 248254-68-4P 248254-69-5P 248254-70-8P 248254-71-9P

248254-73-1P 248254-76-4P 248254-79-7P 248254-82-2P 248254-85-5P

248254-88-8P 248254-89-9P 248254-92-4P 248254-95-7P 248254-97-9P

RL: INF (Industrial manufacture); FRP (Properties); PRMP

(Preparation)

(modification of side-chain liquid-crystalline alternating maleic

anhydride-1-alkene copolymers with mesogen-containing alcs.)

RETABLE

Referenced Author (RAU)	Year	VOL	PG	Referenced Work (RWK)	File
Blatch, A	11995	18	1801	Liq Cryst	HCAPLUS
Craig, A	11995	28	13617	Macromolecules	HCAPLUS
Craig, A	11997	38	14951	Polymer	HCAPLUS
Diale, S	11997	188	11993	Makromol Chem	HCAPLUS
Diale, S	11996	17	1267	Makromol Chem Rapid	HCAPLUS
Gray, G	11979	1		The Molecular Physic	
Hu, G	11993	31	1691	J Polym Sci Part A	HCAPLUS
Imrie, C	11992	25	1278	Macromolecules	HCAPLUS
Imrie, C	11993	26	539	Macromolecules	HCAPLUS
Imrie, C	11994	27	1578	Macromolecules	HCAPLUS
Imrie, C	11994	27	16673	Macromolecules	HCAPLUS
Imrie, C	11996	29	11031	Macromolecules	HCAPLUS
Komiy, Z	11992	25	13609	Macromolecules	HCAPLUS
Kosaka, Y	11994	27	12658	Macromolecules	HCAPLUS
Kosaka, Y	11995	28	1870	Macromolecules	HCAPLUS
Mirceva, A	11998	40	1469	Polym Bull	HCAPLUS
Nieuwhof, R	11998	127	1115	Macromol Symp	HCAPLUS
Nieuwhof, R	11999	32	1398	Macromolecules	HCAPLUS
Nieuwhof, R	11998	14	5702	Langmuir	HCAPLUS
Ogawa, K	11997	29	1142	Polym J	HCAPLUS
Percec, V	11991	24	4963	Macromolecules	HCAPLUS
Percec, V	11991	25	131	Polym Bull	HCAPLUS
Percec, V	11991	32	12862	Polymer	HCAPLUS
Portugall, M	11982	183	12311	Makromol Chem	HCAPLUS
Rodriguez-Parada, J	11986	24	1363	J Polym Sci Part A	HCAPLUS
Schleeh, T	11993	31	11859	J Polym Sci Part A	HCAPLUS
Sugiyama, K	11991	64	1715	Bull Chem Soc	HCAPLUS
Tack, J	11996	37	14307	Polymer	HCAPLUS
Ungerank, M	11995	196	13623	Macromol Chem Phys	HCAPLUS
Vogel, A	11989	1	1949	Textbook of Practica	
Winkler, B	11996	197	12343	Macromol Chem Phys	HCAPLUS

L152 ANSWER 15 OF 55 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1999:513942 HCAPLUS Full-text

DOCUMENT NUMBER: 131:272421

TITLE: Liquid crystallization of poly(styrene-co-maleic



**anhydride)** induced by intermolecular hydrogen bonds

- AUTHOR(S):** Yan, Hua; Zhu, Xia  
**CORPORATE SOURCE:** Department of Petrochemistry, Logistic Engineering University, Chungking, 400016, Peop. Rep. China  
**SOURCE:** Journal of Applied Polymer Science (1999), 74(1), 97-105  
**CODEN:** JAPNAB; ISSN: 0021-8995  
**PUBLISHER:** John Wiley & Sons, Inc.  
**DOCUMENT TYPE:** English  
**LANGUAGE:** English  
**AB** The liquid crystallization of general polymer (GP) with maleic **anhydride** in the main chain has been realized through mol. recognition and self-assembly based on intermol. hydrogen bonds. Poly(styrene-co-(N-4-carboxyphenyl)maleimide) (SMBA) was synthesized by imidization and denaturation of poly(styrene-co-maleic **anhydride**) (SMA) with p-aminobenzoic acid (ABA) for use as an H-bonded donor polymer. 4-Methoxy-4'-stilbazole (MSZ) and 4-nitro-4'-stilbazole (SZN02) were prepared as an H-bonded acceptor. SMBA was complexed with MSZ or SZN02 by slow evaporation from pyridine solution to form a self-assembly, which exhibits the mesophase, while neither of the individual components is mesogenic. The phase diagrams of a variety of mixts. between of SMBA and stilbazoles have been established using DSC and POM. They show complete miscibility and high thermal stability of the liquid crystalline phase over the whole composition range. The tuning of liquid crystalline properties was achieved by changing the composition of the mixture and involving it with a mixture of SZN02 and MSZ. IR measurements strongly support the existence of an H-bonded complex between the carboxylic acid of SMBA and the pyridine group of stilbazoles. Unlike conventional side-chain liquid crystalline polymer (SLCP), supramol. SLCP with a lower mol. weight polymeric donor has higher thermal stability of the liquid crystalline phase due to the microphase separated in the hydrogen bonding case. Liquid crystallization of GP, such as SMA, induced by hydrogen bonds, offers a new route to prepare functional material with controlled mol. architecture from readily accessible and simpler precursors.  
**CC** 36-3 (Physical Properties of Synthetic High Polymers)  
**ST** Section cross-reference(s): 75  
**IT** liq **cryst** maleic **anhydride** styrene copolymer;  
 hydrogen bond copolymer liq **cryst**  
**Glass transition temperature**  
 Hydrogen bond  
 Liquid crystals, polymeric  
 Phase diagram  
 Phase transition  
 Thermal stability  
 (preparation and liquid crystallization of poly(styrene-co-maleic **anhydride**)  
 Induced by intermol. hydrogen bonds)  
**IT** 150-13-0DP, p-Aminobenzoic acid, reaction products with maleic **anhydride**-styrene copolymer, complexes with stilbazoles  
 722-21-4DP, 4'-Methoxy-4-stilbazole, complexes with imidized maleic **anhydride**-styrene copolymer 1023-66-1DP, 4'-Nitro-4-stilbazole, complexes with imidized maleic **anhydride**-styrene copolymer 9011-13-6DP, Maleic **anhydride**-styrene copolymer, reaction products with p-aminobenzoic acid, complexes with stilbazoles  
 RI: PEP (Physical, engineering or chemical process); PEP (Properties); SN (Synthetic preparation); **FRAC** (Preparation); **PROC** (Process)  
**anhydride)**  
 (preparation and liquid crystallization of poly(styrene-co-maleic

induced by intermol. hydrogen bonds)

Referenced Author (RAU)	Year	VOL	PG	Referenced Work (RWK)	Referenced File
Ahlheim, M	1994	195	1361	Macromol Chem Phys	HCAPLUS
Bazulin, C	1995	128	18877	Macromolecule	HCAPLUS
Chiang, M	1993	177		J Org Chem	
Cooper, K	1989	130	1464	Polym Prepr	HCAPLUS
Dhathathreyan, A	1996	129	1827	Macromolecule	HCAPLUS
Jackson, W	1976	114	12043	J Polym Sci Part A	HCAPLUS
Jackson, W	1983	116	11027	Macromolecules	HCAPLUS
Kato, T	1994	137	11644	Angew Chem Int Ed Enl	
Kato, T	1989	122	13818	J Macromolecules	HCAPLUS
Kato, T	1996	129	18234	Macromolecule	
Kato, T	1992	123	16836	Macromolecules	HCAPLUS
Kato, T	1995	128	18875	Macromolecules	HCAPLUS
Kiss, G	1987	127	1460	Polym Eng Sci	
Percec, V	1992	125	12563	Macromolecule	HCAPLUS
Ringsdorf, H	1989	128	1914	Angew Chem Int Ed Enl	
Trivedi, B	1982			Maleic Anhydride	
Ujile, S	1991		11037	Chem Lett	HCAPLUS
Ujile, S	1992	125	13174	Macromolecule	HCAPLUS
Weiss, R	1987	127	1684	Polym Eng Sci	HCAPLUS
Xu, X	1996	117	11940	Chem J Chin Uni	HCAPLUS

L152 ANSWER 16 OF 55

HCAPLUS COPYRIGHT 2007 ACS on STN

1999:513254 HCAPLUS Full-text

1321123112

DOCUMENT NUMBER:

TITLE:

Crystallization and multiple melting behavior of a new semicrystalline polyimide based on 1,3-bis(4-aminophenoxy)benzene (TPER) and 3,3',4,4'-biphenonetetracarboxylic **dianhydride** (BTDA)  
 Garth L.  
 Ratta, Varun; Ayambem, Ambe; McGrath, J. E.; Wilkes, Department of Chemical Engineering, NSF Science and Technology Center for High Performance Polymeric Adhesives and Composites, Virginia Tech University, Blacksburg, VA, 24061, USA  
 Polymeric Materials Science and Engineering (1999), 81, 303-304  
 CODEN: PMSEDE; ISSN: 0743-0515  
 American Chemical Society

**AUTHOR(S):**

**CORPORATE SOURCE:**

**SOURCE:**

**PUBLISHER:**

**DOCUMENT TYPE:**

**LANGUAGE:**

**AB** A novel semi-crystalline polyimide prepared from the title components (TPER-BTDA) displayed significant recrystn. ability from the melt. TPER-BTDA has a glass transition temperature of approx.230° in addition to two prominent melting endotherms with maximum m.ps. of approx.350° and 410°. End-capping the polymer with phthalic **anhydride** not only served to control the mol. weight but also significantly improved the thermal stability. The peculiar melting behavior, with two endotherms, changes dramatically as the crystallization temperature (Tc) is >340°. This improves the possible use of the polyimide as a high-temperature adhesive and use in high-temperature composites.  
**CC** 36-2 (Physical Properties of Synthetic High Polymers)  
**ST** semicryst bisaminophenylene BTDA polyimide melting behavior; glass transition bisaminophenylene BTDA polyimide  
**IT** Crystallization  
**Glass transition temperature**

**Melting point**

based on crystallization and multiple melting behavior of semicryst. polyimide

IT 54570-90-0, 1,3-isobenzofurandione, 5,5'-carbonylbis-, polymer with

4,4'-(1,3-phenylenebis(oxy))bis[benzamine] 54571-75-4,

Poly[(1,3-dihydro-1,3-dioxo-2H-isoindole-2,5-diyl)carbonyl(1,3-dihydro-1,3-

dioxo-2H-isoindole-5,2-diyl)-1,4-phenyleneoxy-1,3-phenyleneoxy-1,4-

phenylene]

RL: FRP (Properties)

(phthalic anhydride)-terminated; **crystallization** and

multiple melting behavior of semicryst. polyimide based on

bis(aminophenoxy)benzene and BTDA)

**RETABLE**

Referenced Author	Year	VOL	PG	Referenced Work	Referenced
(RAU)	(RPY)	(RVL)	(RPG)	(RWK)	File
Chang, A	1994	1	13	Proceedings of the F	
Graham, M	1997	138	1306	Polymer Preprints	HCAPLUS
Ratta, V	1999	140	1889	Polymer	HCAPLUS
Ratta, V	1999	140	1889	Polymer	HCAPLUS
Sasuga, T	1991	132	1012	Polymer	
Srinivas, S	1997	130	1012	Macromolecules	HCAPLUS
Tamai, S	1996	137	3683	Polymer	HCAPLUS
Tamai, S	1998	139	1945	Polymer	HCAPLUS

L152 ANSWER 17 OF 55 HCAPLUS COPYRIGHT 2007 ACS on STN

1999:346205 HCAPLUS Full-text

130:352809

**LIQUID CRYSTALLINE** alkene-maleic

**anhydride** polymers having mesogenic side

chains, their preparation and film properties

Fawcett, Allan Herbert; Date, Richard William

Secretary of State for Defence, UK

Brit. UK Pat. Appl., 46 pp.

CODEN: BAXXDU

INVENTOR(S): Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
GB 2328441	A	19950224	GB 1997-18184	19970829 <--
PRIORITY APPL. INFO.: A			GB 1997-14348	A 19970709 <--
AB	The title polymers, useful for piezoelec. device, sensor, chromatog. medium, optical storage device, nonlinear optic device, etc., are prepared by polymerization of mesogen- or hydrocarbyl-containing alkene with maleic anhydride, and derivatizing the maleic anhydride groups with alc., other mesogenic compound, amine, etc. Thus, the maleic anhydride-4-(undec-1-en-11-oxy)-4'-cyanobiphenyl copolymer had number-average mol. weight 17,200, glass transition temperature 170, and clearing temperature 104.			
IC	ICM	C09K019-38		
CC	ICS	G02F001-1337		
ST	Section cross-reference(s): 75			
IT	liq. cryst. alkene maleic anhydride polymer; birefringence liq. cryst. maleic anhydride polymer; undecenylalkoxy cyanobiphenyl maleic anhydride copolymer			
IT	Ionomers			

RL: IMF (Industrial manufacture); **PREP** (Preparation)

(liquid crystalline alkene-maleic anhydride polymers

having mesogenic side chains and properties)

IT Optical memory devices

Piezoelectric apparatus

Sensors

(liquid crystalline alkene-maleic anhydride polymers

having mesogenic side chains for)

IT Chromatography

(medium; liquid crystalline alkene-maleic anhydride

polymers having mesogenic side chains for)

IT Optical instruments

(nonlinear; liquid crystalline alkene-maleic anhydride

polymers having mesogenic side chains for)

IT Liquid crystals, polymeric

Liquid crystals, polymeric

(thermotropic; liquid crystalline alkene-maleic anhydride

polymers having mesogenic side chains and properties)

IT 210778-78-2P

RL: IMF (Industrial manufacture); RCT (Reactant); **PREP**

(Preparation); **RAC** (Reactant or reagent)

(intermediate; liquid crystalline alkene-maleic anhydride

polymers having mesogenic side chains and properties)

111-86-4DP, 1-Octylamine, reaction products with liquid crystalline polymer

7664-41-7DP, Ammonia, reaction products with liquid crystalline polymer,

Preparation 224584-99-0P, Maleic anhydride-4-(undec-1-en-11-

oxy)-4'-cyanobiphenyl copolymer 224585-00-6P, Maleic

acid-4-(undec-1-en-11-oxy)-4'-cyanobiphenyl copolymer 224585-01-7P,

Maleic acid-4-(undec-1-en-11-oxy)-4'-cyanobiphenyl copolymer potassium

salt 224585-02-8P, Maleic acid-4-(undec-1-en-11-oxy)-4'-cyanobiphenyl

copolymer calcium salt 224585-03-9P, Maleic acid-4-(undec-1-en-11-oxy)-

4'-cyanobiphenyl copolymer cerium salt 224585-04-0P 224585-08-4DP,

reaction products with azo dye 224585-09-5P 224585-10-8P

224641-71-8P 224641-72-9P 224641-73-0P

RL: IMF (Industrial manufacture); **PREP** (Preparation)

(liquid crystalline alkene-maleic anhydride polymers

having mesogenic side chains and properties)

IT 124774-91-0DP, 4-Methoxy-4'-(6-hydroxyethyloxy)azobenzene, reaction

products with liquid crystalline polymer 224584-99-0DP, reaction products

with azo dye

RL: IMF (Industrial manufacture); PRP (Properties); **PREP**

(Preparation)

(liquid crystalline alkene-maleic anhydride polymers

having mesogenic side chains and properties)

IT 821-41-0, 5-Hexen-1-ol 2834-05-1, 11-Bromoundecanoic acid 7766-50-9,

10-Undecenyl bromide 19812-93-2, 4-Cyano-4'-hydroxybiphenyl

RL: RCT (Reactant); **RAC** (Reactant or reagent)

(liquid crystalline alkene-maleic anhydride polymers

having mesogenic side chains and properties)

IT 105531-79-1P 210778-79-3P

RL: IMF (Industrial manufacture); RCT (Reactant); **PREP**

(Preparation); **RAC** (Reactant or reagent)

(preparation and polymerization; liquid crystalline alkene-maleic

**anhydride** polymers having mesogenic side chains and properties)

L152 ANSWER 18 OF 55 HCAPLUS COPYRIGHT 2007 ACS on STN

1999:161609 HCAPLUS Full-text

DOCUMENT NUMBER: 130:325468

TITLE: Studies on Imidization Behaviors of Differently

- Processed Samples of Poly(imide-alt-amic ester)  
Prepared from MDPM and 6FDA  
Lee, Myong-Hoon; Woo, Tae Ha; Lee, Myongsoo; Lee, Changjin; Rhee, Suh Bong  
Advanced Polymer Division, KRIST, Yusung Taejeon, 305-600, S. Korea  
CODEN: MAMOBX; ISSN: 0024-9297  
American Chemical Society  
Journal  
English
- AB Imidization behaviors of differently processed polyimide precursors were investigated for ester group-containing precursors prepared from N,N'-bis(3-aminophenyl)-2,5-bis[(isopropoxy)carbonyl]benzene-1,4-dicarboxamide and 4,4'-(hexafluoroisopropylidene)diphthalic anhydride. The imidization temperature of polyimide precursors increase in the order bulk powder, film, stretched film, and **precipitated powder**, which was the increasing order of **crystallinity** of precursor samples. The **crystallinity** of precursors was preserved in the final polyimide after thermal imidization. Consequently, the morphol. of precursors affected the properties of final polyimide such as thermal stability and glass **temperature**
- CC 35-8 (Chemistry of Synthetic High Polymers)
- IT Polyimides, preparation  
Polyimides, preparation  
RL: PEP (Physical, engineering or chemical process); PRP (Properties); SPN (Synthetic preparation); **PREP (Preparation)**; **PROC (Process)**  
(fluorine-containing; imidization behaviors of differently processed samples of poly(imide-alt-amic ester) prepared from tetracarboxylic acid diester and (hexafluoroisopropylidene)diphthalic anhydride)
- IT Imidation  
Reaction enthalpy  
(imidization behaviors of differently processed samples of poly(imide-alt-amic ester) prepared from tetracarboxylic acid diester and (hexafluoroisopropylidene)diphthalic anhydride)
- IT **Glass transition temperature**  
(imidization behaviors of differently processed samples of poly(imide-alt-amic ester) prepared from tetracarboxylic acid diester and (hexafluoroisopropylidene)diphthalic anhydride in relation to)
- IT **Crystallinity**  
(imidization behaviors of differently processed samples of poly(imide-alt-amic ester) prepared from tetracarboxylic acid diester and (hexafluoroisopropylidene)diphthalic anhydride in relation to **crystallinity**)  
Polyimides, processes  
Polyimides, processes  
RL: PEP (Physical, engineering or chemical process); PRP (Properties); **PROC (Process)**  
(polyamic acid-, fluorine-containing, ester; imidization behaviors of differently processed samples of poly(imide-alt-amic ester) prepared from tetracarboxylic acid diester and (hexafluoroisopropylidene)diphthalic anhydride)
- IT Fluoropolymers, processes  
RL: PEP (Physical, engineering or chemical process); PRP (Properties); **PROC (Process)**  
(polyamic acid-polyimide-, ester; imidization behaviors of differently processed samples of poly(imide-alt-amic ester) prepared from

- tetracarboxylic acid diester and (hexafluoroisopropylidene)diphthalic anhydride)
- IT Polyamic acids  
Polyamic acids  
RL: PEP (Physical, engineering or chemical process); PRP (Properties); **PROC (Process)**  
(polyimide-, fluorine-containing, ester; imidization behaviors of differently processed samples of poly(imide-alt-amic ester) prepared from tetracarboxylic acid diester and (hexafluoroisopropylidene)diphthalic anhydride)
- IT Fluoropolymers, preparation  
Fluoropolymers, preparation  
RL: PEP (Physical, engineering or chemical process); PRP (Properties); SPN (Synthetic preparation); **PREP (Preparation)**; **PROC (Process)**  
(polyimide-; imidization behaviors of differently processed samples of poly(imide-alt-amic ester) prepared from tetracarboxylic acid diester and (hexafluoroisopropylidene)diphthalic anhydride)
- IT 195157-52-9 195215-09-9  
RL: PEP (Physical, engineering or chemical process); PRP (Properties); **PROC (Process)**  
(imidization behaviors of differently processed samples of poly(imide-alt-amic ester) prepared from tetracarboxylic acid diester and (hexafluoroisopropylidene)diphthalic anhydride)
- IT 195150-64-2P  
RL: PEP (Physical, engineering or chemical process); PRP (Properties); SPN (Synthetic preparation); **PREP (Preparation)**; **PROC (Process)**  
(imidization behaviors of differently processed samples of poly(imide-alt-amic ester) prepared from tetracarboxylic acid diester and (hexafluoroisopropylidene)diphthalic anhydride)
- RETABLE
- | Referenced Author (RAU) | Year (RPY) | VOL (RVL) | PG (RPG) | Referenced Work (RWK)  | File    |
|-------------------------|------------|-----------|----------|------------------------|---------|
| Bower, G                | 1963       | 11        | 13135    | J Polym Sci, Part A    | HCAPIUS |
| Brekner, M              | 1987       | 125       | 12479    | J Polym Sci Polym Chem | HCAPIUS |
| Chen, K                 | 1993       | 148       | 1291     | J Appl Polym Sci       | HCAPIUS |
| Dine-Hart, R            | 1967       | 111       | 1609     | J Appl Polym Sci       | HCAPIUS |
| Goeschel, U             | 1994       | 1272      | 11388    | Colloid Polym Sci      | HCAPIUS |
| Johnson, E              | 1871       | 18        | 1039     | J Appl Polym Sci       | HCAPIUS |
| Kreuz, J                | 1966       | 4         | 12607    | J Polym Sci, Part A    | HCAPIUS |
| Lee, L                  | 1989       |           | 1389     | Polyimides             | HCAPIUS |
| Miwa, T                 | 1997       | 1118      | 1177     | Macromol Symp          | HCAPIUS |
| Numata, S               | 1988       | 128       | 14945    | Polymer                | HCAPIUS |
| Park, J                 | 1994       | 127       | 13459    | Macromolecules         | HCAPIUS |
| Ree, M                  | 1995       | 135       | 1129     | Polym Bull             | HCAPIUS |
| Rhee, S                 | 1995       | 1196      | 1691     | Macromol Chem Phys     | HCAPIUS |
| Rhee, S                 | 1993       | 126       | 1404     | Macromolecules         | HCAPIUS |
| Sroog, C                | 1976       | 111       | 1161     | J Polym Sci Macromol   | HCAPIUS |
| Takahashi, N            | 1984       | 117       | 12583    | Macromolecules         | HCAPIUS |
- L152 ANSWER 19 OF 55 HCAPIUS COPYRIGHT 2007 ACS on STN  
ACCESSION NUMBER: 1999:149629 HCAPIUS Full-text  
DOCUMENT NUMBER: 130:282648  
TITLE:  
Study on PC/PET/PE-g-MAH blend  
AUTHOR(S): Xi, Shiping; Feng, Yiren; Liu, Chir; Liu, Zengxing  
CORPORATE SOURCE: Department of Chemistry, Zhongshan University, Canton,

## SOURCE:

510275, Peop. Rep. China  
Gaofenzi Calliao Xue Yu Gongcheng (1999),  
15(1), 94-96

CODEN: GCKGEI; ISSN: 1000-7555

PUBLISHER: "Gaofenzi Calliao Xue Yu Gongcheng" Bianjibu

DOCUMENT TYPE: Journal

LANGUAGE: Chinese

AB Effect of PE-g-MAH (polyethylene-maleic anhydride graft copolymer) on compatibility, crystal behavior and morphology of PC/PET blend was studied. PE-g-MAH can improve compatibility between PC and PET, increase crystallinity of PET and distribution of PC and PET in each phase, and the degree deepens with increasing the content.

CC 36-6 (Physical Properties of Synthetic High Polymers)

ST polyethylene maleic anhydride graft copolymer compatibilization

polycarbonate PET blend

IT Crystal nucleating agents

**Crystallinity**

**Glass transition temperature**

Polymer blend compatibilizers

Polymer morphology

(polyethylene-maleic anhydride graft copolymer compatibilized

polycarbonate/PET blend)

IT Polyesters, properties

RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)

(polyethylene-maleic anhydride graft copolymer compatibilized

polycarbonate/PET blend)

IT Polymer blends

RL: PRP (Properties)

(polyethylene-maleic anhydride graft copolymer compatibilized

polycarbonate/PET blend)

IT 9002-88-4D, Polyethylene, maleated

RL: MOA (Modifier or additive use); USES (Uses)

(low-d.; polyethylene-maleic anhydride graft copolymer

compatibilized polycarbonate/PET blend)

IT 108-31-6D, Maleic anhydride, reaction products with

polyethylene

RL: MOA (Modifier or additive use); USES (Uses)

(polyethylene-maleic anhydride graft copolymer compatibilized

polycarbonate/PET blend)

IT 24936-68-3, properties 25037-45-0 25038-59-9, PET polyester,

properties

RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)

(polyethylene-maleic anhydride graft copolymer compatibilized

polycarbonate/PET blend)

LI52 ANSWER 20 OF 55 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1999:32013 HCAPLUS Full-text

DOCUMENT NUMBER: 130:96857

TITLE: Liquid-crystalline, crosslinkable, siloxanes, their

crosslinked products having a low glass

transition temperature, and their

manufacture

INVENTOR(S): Häberle, Norman; Kreuzer, Franz-Helmut; Kupfer,

Jürgen

PATENT ASSIGNEE(S): Consortium für Elektrochemische Industrie G.m.b.H.,

Germany

SOURCE: Eur. Pat. Appl., 14 pp.

DOCUMENT TYPE: CODEN: EPOXDW

LANGUAGE: Patent

German

## FAMILY ACC. NUM. COUNT: 1

## PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 887399	A1	19981230	EP 1998-110153	19980604 <--
EP 887399	B1	20011128		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
DE 19726047	A1	19981224	DE 1997-19726047	19970619 <--
SG 82579	A1	20010821	SG 1998-1337	19980518 <--
AT 20011215	T	20011215	AT 1998-110153	19980604 <--
US 6040411	A	20000321	US 1998-90025	19980610 <--
CA 2240817	A1	19981219	CA 1998-2240817	19980616 <--
JP 11100445	A	19990413	JP 1998-169966	19980617 <--
PRIORITY APPLN. INFO.: DE 1997-19726047 A 19970619 <--				
AB Title siloxanes, useful as pigments, are manufactured by reaction of hydrosiloxanes with CH <sub>2</sub> :CH(CH <sub>2</sub> )p-20qC <sub>6</sub> H <sub>4</sub> Q(CO <sub>2</sub> )s(Am)TE(CH <sub>2</sub> CH <sub>2</sub> O)AVN [I; Z = CH <sub>2</sub> or CH <sub>2</sub> CH <sub>2</sub> ; A = aromatic or heterocyclic divalent group; M = O, CO <sub>2</sub> , OCO, or OCO(CH <sub>2</sub> )VOO <sub>2</sub> CH <sub>2</sub> CH <sub>2</sub> ; VN = CO <sub>2</sub> CH:CH <sub>2</sub> , CO <sub>2</sub> CH <sub>2</sub> :CH <sub>2</sub> , (CH <sub>2</sub> ) <sub>2</sub> CH:CH <sub>2</sub> , CH:CH <sub>2</sub> , or oxiranyl; E = (O-bridged) C1-10 alkylene; a = 0-6; p = 3-6; q, s = 0 or 1; t = 0-3; with no O atoms directly bonded 1 to another] or a mixture of I and CH <sub>2</sub> :CH(CH <sub>2</sub> )m-20nAtQX [A = same as in I; Q = CO <sub>2</sub> , OCO, O, single bond, or OC(O)O; X = cholesterol, dihydrocholesterol, dolisteryl, isosorbityl, isomannityl, cholic acid group, (4-substituted) Ph, (4'-substituted) biphenyl, (4-substituted) cyclohexyl, (4'-substituted) dicyclohexyl, (4'-substituted) cyclohexenyl, (2,5-substituted) 1,3-dioxanyl, or (substituted) pyrimidinyl; m = 3-6; n = 0 or 1; t = 0-3]. Thus, reacting 71 g cholesterol 4-allyloxybenzoate with 21 g 1,3,5,7-tetrahydrocyclooctetrasiloxane 1 h at 60° in the presence of a cyclooctadienyldichloroplatinum (II) catalyst, cooling to 40°, adding 4-(4-methacryloxybutoxy)phenyl 4-allyloxybenzoate (III) 80, BHT 0.09, and 0.5% II-CH <sub>2</sub> Cl <sub>2</sub> solution 1.06 g, heating 1.5 h at 75°, cooling to 20°, adding III 37.2, cholesterol methacrylate 9.85, and BHT 0.09, filtering, adding 5.36 g photoinitiator, removing the solvent on a thin-film evaporator at 90° and 25 hPa, and UV-irradiating and orienting at 90° gave a film with glass temperature 72°.				
IC	ICM	C09K019-40		
CC	ICS	C08G077-26; C08G077-388; C08G077-48; C07C069-773; C07C069-78		
41-8 (Dyes, Organic Pigments, Fluorescent Brighteners, and Photographic Sensitizers)				
IT	Aminoplasts	Section cross-reference(s): 75		
RL: POF (Polymer in formulation); USES (Uses)				
(acrylate-crosslinked pigmented film; liquid-crystalline, crosslinkable siloxanes for crosslinked products with low glass temperature for pigments)				
IT	Liquid crystals, polymeric			
Pigments, nonbiological				
(liquid-crystalline, crosslinkable siloxanes for crosslinked products with low glass temperature for pigments)				
IT	Cyclosiloxanes			
Polysiloxanes, preparation				
RL: IMF (Industrial manufacture); MOA (Modifier or additive use); PRP (Preparation); USES (Uses)				
(reaction products, with liquid-crystalline compds., crosslinked polymers; liquid-crystalline, crosslinkable siloxanes for crosslinked products with low glass temperature for pigments)				
IT				
9003-08-1, Melamine resin				



## INVENTOR(S):

Smith, James D. B.; Schoch, Karl F., Jr.; Su, Wei-Fang

## PATENT ASSIGNEE(S):

Westinghouse Electric Corporation, USA

## SOURCE:

PCT Int. Appl., 23 pp.

## DOCUMENT TYPE:

Patent

## LANGUAGE:

English

## FAMILY ACC. NUM. COUNT: 1

## PATENT INFORMATION:

PATENT NO. KIND DATE APPLICATION NO. DATE  
 WO 916937 A1 19980423 WO 1997-US16069 19970911 <--  
 W: CA, CN, JP, KR, MX, PL  
 RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE  
 PRIORITY APPLN. INFO.:  
 AB A linear epoxy/mesogen/epoxy mol. of the liquid crystal thermoset epoxy resin is an elec. insulator with a high degree of crystallinity for insulating coils and transformers to give an elec. insulator with mech. and elec. properties suitable for use in high temperature, high stress environments. The epoxy Q(CH<sub>2</sub>)<sub>2</sub>MO(CH<sub>2</sub>)<sub>2</sub>NR(CH<sub>2</sub>)<sub>2</sub>NO(CH<sub>2</sub>)<sub>2</sub>MO (Q = glycidyl, R = 4,4'-biphenyl) cured with 4,4'-diaminodiphenylsulfone had glass transition temperature 231° and coefficient of thermal expansion 56.9 ppm/°C; vs. 200 and 67.7, resp., for bisphenol A epoxy resin. This liquid crystal epoxy resin is useful in formation of elec. insulating tape.

IC

ICM H01B003-40

ICS

C09K019-38

CC

38-3 (Plastics Fabrication and Uses)

ST

Section cross-reference(s): 37, 75  
 aminodiphenylsulfone cured liq crystal epoxy resin; **anhydride**  
 cured liq crystal epoxy resin; elec insulator tape liq crystal  
 epoxy; tensile property liq crystal epoxy insulator; thermal property liq crystal epoxy insulator

IT

Epoxy resins, uses  
 RL: INF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); **PREP (Preparation)**; USES (Uses)  
 (biphenyl-based; elec. insulation using liquid crystal thermoset epoxy resins)

IT

80-08-0, 4,4'-Diaminodiphenylsulfone **85-42-7**, Hexahydrophthalic **anhydride 552-30-7**  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (crosslinker; elec. insulation using liquid crystal thermoset epoxy resins)

IT

119121-54-9DP, epoxy derivs.  
 RL: INF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); **PREP (Preparation)**; USES (Uses)  
 (elec. insulation using liquid crystal thermoset epoxy resins)

## RETABLE

Referenced Author Year VOL PG Referenced Work Referenced  
 (RAU) (RPY) (RVL) (RPG) (RWK) File

Anon 1991:8 14 HIGH TECH MATERIALS  
 11991:1 1 EP 0445401 A HCAPUS  
 Bayer Ag 1992:1 1 EP 0475023 A HCAPUS  
 Bayer Ag 1995:1 1 WO 9507308 A HCAPUS  
 Europ Communities 1993:31 13251 JOURNAL OF POLYMER S HCAPUS  
 Su, W

L152 ANSWER 23 OF 55 HCAPUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 1998:195654 HCAPUS Full-text

## DOCUMENT NUMBER:

128:193171

## TITLE:

Synthesis and characterization of the side chain  
 liquid crystalline poly(monoester [6-[4-(p-  
 nitrophenyl)azophenoxy-1-hexyloxy]of maleic  
 anhydride)

## AUTHOR(S):

King, Pei-xiang; Wang, Da-yang; Tian, Yan-qing; Liu,  
 Zhi-qiang; Zhao, Ying-ying; Tang, Xin-yi; Jiang,  
 Bing-zheng

## CORPORATE SOURCE:

Polymer Phys. Lab., Changchun Inst. Appl. Chem.,  
 Changchun, 130022, Peop. Rep. China  
 Chemical Research in Chinese Universities (1998), 14(1), 81-86

## SOURCE:

CODEN: CRCJED; ISSN: 1000-9213

## PUBLISHER:

Higher Education Press

## DOCUMENT TYPE:

Journal

## LANGUAGE:

English

AB The poly(monoester [6-[4-(p-nitrophenyl)azophenoxy-1-hexyloxy] of maleic anhydride) shows a smectic phase with a focal conic fan texture. With the decrease of the monoesterification degree the phase transition temperature decreases and the mesomorphic temperature range becomes narrow. The hydrogen bonding between two carboxylic acid groups was found to play a very important role in forming the smectic phase structure. The smectic bilayer structure has been built through self-assembly via. intermol. hydrogen bonding.

CC

37-3 (Plastics Manufacture and Processing)

ST

liq crystal polymaleic anhydride

IT

nitrophenylazophenoxyhexyloxy

IT

Phase transition enthalpy

IT

(of liquid-crystalline poly(maleic anhydride) containing

IT

(nitrophenyl)azophenoxyhexyloxy group)

IT

Liquid crystals, polymeric

IT

(poly(maleic anhydride) containing [nitrophenyl]azophenoxyhexyloxy group)

IT

629-11-8, Hexamethylene glycol 7632-00-0, Sodium nitrite 10035-10-6,

IT

Hydrobromic acid, reactions

IT

RL: RCT (Reactant); RACT (Reactant or reagent)

IT

(in preparation of [(nitrophenyl)azophenoxy]hexanol)

IT

1435-60-5P, 4-[(p-nitrophenyl)azophenol 4286-55-9P, 6-Bromo-1-hexanol

IT

RL: RCT (Reactant); SPN (Synthetic preparation); **PREP**

IT

(Preparation); RACT (Reactant or reagent)

IT

(in preparation of [(nitrophenyl)azophenoxy]hexanol)

IT

[(nitrophenyl)azophenoxy]hexanol

IT

RL: SPN (Synthetic preparation); **PREP (Preparation)**

IT

(liquid crystals; preparation and characterization of)

IT

24937-72-2P, Poly(maleic anhydride) 155940-42-4DP, reaction

IT

products with poly(maleic anhydride) 155940-42-4P

IT

RL: SPN (Synthetic preparation); **PREP (Preparation)**

IT

(preparation and characterization of)

IT

RETABLE

Referenced Author Year VOL PG Referenced Work Referenced

(RAU) (RPY) (RVL) (RPG) (RWK) File

Aharoni, S 1988 121 1941 Macromolecules

Bellamy, L 1978 11 The Infrared Spectra

Blumstein, A 1976 19 1243 Macromolecules HCAPUS

Blumstein, A 1985 1 Polymer Liquid Crystals

Chapoy, L 1985 1 Recent Advances in L





IT 9010-98-4P, Polychloroprene 25776-93-6P, Chloroprene-vinyl acetate copolymer 26264-80-2P, Chloroprene-methyl methacrylate copolymer 26297-85-8P, Chloroprene-maleic anhydride copolymer 27324-79-4P, Chloroprene-maleic acid copolymer 168265-42-7P, Chloroprene-maleimide copolymer 168265-43-8P, N-Benzylmaleimide-cyclohexylmaleimide copolymer 168265-44-9P, N-Benzylmaleimide-chloroprene copolymer 168265-45-0P, Chloroprene-N-phenylmaleimide copolymer 168265-46-1P, Chloroprene-citraconic anhydride copolymer 168265-47-2P, Chloroprene-itaconic anhydride copolymer 168265-48-3P, Chloroprene-citraconic acid copolymer 168265-49-4P, Chloroprene-itaconic acid copolymer  
 RI: PRP (Properties); SPN (Synthetic preparation); PRP (Preparation)

(Modification of chloroprene properties by free-radical copolym. with cyclic imides and anhydrides and unsatd. acids)

L152 ANSWER 26 OF 55 HCAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 1997:491816 HCAPLUS Full-text  
 DOCUMENT NUMBER: 127:176907

TITLE: Order in Thin Films of Side-Chain Liquid-Crystalline Polymers  
 AUTHOR(S): van der Wielen, M. W. J.; Stuart, M. A. Cohen; Fleer, G. J.; de Boer, D. K. G.; Leenaers, A. J. G.; Nieuwhof, R. P.; Marcelis, A. T. M.; Sudhoelter, E. J. R.

CORPORATE SOURCE: Department of Physical and Colloid Chemistry, Wageningen Agricultural University, Wageningen, 6703 HB, Neth.

SOURCE: Langmuir (1997), 13(17), 4762-4766  
 CODEN: LANGD5; ISSN: 0743-7463

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal  
 LANGUAGE: English

AB Spin-coated side-chain liquid-crystalline polymer films, based on alternating copolymers of maleic anhydride and  $\alpha$ -olefins carrying terminal mesogenic methoxybiphenylvinyloxy groups, on silicon wafers show lamellar ordering upon annealing above the glass transition temperature. In the surface topog. (atomic force microscopy measurements), structures are visible with a height corresponding to a bilayer. Also within the film, the side chains are ordered perpendicularly to the surface as measured by X-ray reflectometry. There are indications that directly at the substrate surface the side chains are aligned parallel to the surface. By the two complementary techniques, a rather complete picture is obtained. Even though the films are very thin (nanometer-scale thickness), the structure has a high degree of perfection and the bilayer spacing is the same as measured for bulk polymer.

CC 36-2 (Physical Properties of Synthetic High Polymers)  
 Section cross-reference(s): 38, 75

ST order side chain liq cryst polymer; maleic anhydride copolymer  
 liq cryst order; olefin copolymer liq cryst order

IT Alkenes, properties

RI: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)

( $\alpha$ -, alternating copolymers with maleic anhydride, methoxybiphenylvinyloxy group-containing; order in thin films of side-chain liquid-crystalline polymers)

IT 108-31-6D, 2,5-Furandione, alternating copolymers with  $\alpha$ -olefins, methoxybiphenylvinyloxy group-containing, properties

RI: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)

RETABLE (order in thin films of side-chain liquid-crystalline polymers)

Referenced Author (RAU)	Year	VOL	PG	Referenced Work (RWP)	Referenced File
Boer de, D	1995	124	191	X-ray Spectrom	
Chapoy, L	1985			Recent Advances in Li	
Ciferri, A	1991			Liquid Crystallinity	
Collyer, A	1992			Liquid Crystal Polym	
Elben, H	1993	126	11013	Macromolecules	HCAPIUS
Frost, A	1974	147	1731	2h Prikl Khim	HCAPIUS
Gray, G	1987			Thermotropic Liquid	
Henn, G	1996	1221	1174	Phys B	HCAPIUS
Leenaers, A				X-Ray Spectrom, in p	
Macardie, C	1989			Side chain liquid cr	
Mensingher, H	1992	196	13183	J Chem Phys	HCAPIUS
Navot, L	1980	115	1761	Rev Phys Appl	HCAPIUS
Nieuwhof, R				To be published	
Russell, T	1990	15	1171	Mater Sci Rep	HCAPIUS
Sheiko, S	1996	112	14015	Langmuir	HCAPIUS
Wong, G	1996	177	15221	Phys Rev Lett	

L152 ANSWER 27 OF 55 HCAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 1997:120407 HCAPLUS Full-text  
 DOCUMENT NUMBER: 126:144791

TITLE: Study on the structure and miscibility of PBPI-E/PTI-E blends

AUTHOR(S): Tang, Hao; Feng, Handiao; Dong, Lisong; Feng, Zhiliu  
 CORPORATE SOURCE: Polymer Physics Lab., Changchun Inst Applied Chem., Chinese Academy Sciences, Changchun, 130022, Peop. Rep. China  
 SOURCE: European Polymer Journal (1997), 33(2), 183-186  
 CODEN: EUPJAG; ISSN: 0014-3057

PUBLISHER: Elsevier

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The crystallization, miscibility and structure of polyimide PBPI-E/PTI-E blends were studied by DSC, DMA, NMR and fluorescence techniques (PBPI-E is a biphenyl-di-anhydride-based polyimide; PTI-E is a 4,4'-thiodipthalic anhydride-4,4'-oxydianiline copolyimide). The PBPI-E/PTI-E blends are miscible at a mol. level for all the comps. studied. However, the Tg of the blends is well below the value predicted by the Fox equation and the blends are not stable at high temperature, i.e., phase separation will occur when the blends are annealed at Tg. Moreover, the m.p., differential enthalpy and spin-lattice relaxation time of the blends increase with the annealing time.

CC 36-6 (Physical Properties of Synthetic High Polymers)  
 IT Crystallinity

Glass transition temperature

(of aromatic polyether-polyimide blends)  
 IT 26298-81-7, 3,3',4'-Biphenyltetracarboxylic dianhydride  
 -4,4'-oxydianiline copolymer 26615-45-2, 3,3',4'-  
 Biphenyltetracarboxylic dianhydride-4,4'-oxydianiline copolymer  
 sr 59372-01-9, 4,4'-Oxydianiline-4,4'-thiodipthalic anhydride  
 copolymer 59380-34-6, 4,4'-Oxydianiline-4,4'-thiodipthalic  
 anhydride copolymer sr

RI: POF (Polymer in formulation); PRP (Properties); USES (Uses)  
 (crystallization, miscibility and structure of blends of)

L152 ANSWER 28 OF 55 HCAPLUS COPYRIGHT 2007 ACS on STN



ACCESSION NUMBER: 1996:466256 HCAPLUS Full-text  
DOCUMENT NUMBER: 125:169113

TITLE: Influence of melt stability on the crystallization of bis(4-aminophenoxy)benzene-oxypyridthalic anhydride based polyimides

AUTHOR(S): Srinivas, Srivatsan; Graham, Marvin; Brink, M. Heather; Gardner, Slade; Davis, Richey M.; McGrath, James E.; Wilkes, Garth L.

CORPORATE SOURCE: Dep. Chem. Eng. Chem., Virginia Tech., Blacksburg, VA, 24061, USA

SOURCE: Polymer Engineering and Science (1996), 36(14), 1928-1940

PUBLISHER: Society of Plastics Engineers

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Novel high performance semicryst. polyimides, based on controlled mol. weight phthalic anhydride (PA)-end-capped 1,4-bis(4'-aminophenoxy)benzene (TPPQ diamine) and oxypyridthalic dianhydride (ODPA), were synthesized. The polyimides exhibited excellent thermal stability in N and air as determined by thermogravimetric anal. (TGA). The glass transition temps. (Tg) for these polymers ranged from 225° for the 10,000 Mn (10K) polymer, to 238° for the 30,000 (30K) Mn material. The observed melting temps. for all the polymers were approx. 420°. The crystallization behavior of these polymers showed a strong mol. weight dependence, as illustrated by the observation that the 10K and 12.5K polymers crystallized with relative ease, whereas the 15K, 20K, and 30K polymers showed little or no ability to undergo thermal recrystn. The thermal stability of these polymers above Tm was investigated by studying the effect of time and temperature in the melt of on the cold crystallization and melting of these polymers. Increased time and temperature in the melt resulted in lower crystallinity because of melt state degradation, such as crosslinking and branching, as evidence by an increase in melt viscosity, which was more prominent for the higher mol. weight polymers.

CC 36-3 (Physical Properties of Synthetic High Polymers)

ST melt stability polyimide crystn; crystn bisaminophenoxybenzene oxypyridthalic anhydride polyimide; thermal stability

bisaminophenoxybenzene polyimide crystn

IT Crystallization

Glass temperature and transition

Heat of crystallization

(mol. weight dependence and melt stability effects on crystallization and thermal

stability of bis(4-aminophenoxy)benzene-based polyimides)

IT Polyimides, properties

RL: PRP (Properties); SPN (Synthetic preparation); PRP

(Preparation)

(mol. weight dependence and melt stability effects on crystallization and thermal

stability of)

IT 25735-01-7P 25736-03-2P

RL: PRP (Properties); SPN (Synthetic preparation); PRP

(Preparation)

(mol. weight dependence and melt stability effects on crystallization and thermal

stability of)

IT 25735-01-7P 25736-03-2P

RL: PRP (Properties); SPN (Synthetic preparation); PRP

(Preparation)

(mol. weight dependence and melt stability effects on crystallization and thermal

stability of)

IT 25735-01-7P 25736-03-2P

RL: PRP (Properties); SPN (Synthetic preparation); PRP

(Preparation)

(mol. weight dependence and melt stability effects on crystallization and thermal

stability of)

IT 25735-01-7P 25736-03-2P

RL: PRP (Properties); SPN (Synthetic preparation); PRP

(Preparation)

(mol. weight dependence and melt stability effects on crystallization and thermal

stability of)

IT 25735-01-7P 25736-03-2P

RL: PRP (Properties); SPN (Synthetic preparation); PRP

(Preparation)

(mol. weight dependence and melt stability effects on crystallization and thermal

stability of)

IT 25735-01-7P 25736-03-2P

RL: PRP (Properties); SPN (Synthetic preparation); PRP

(Preparation)

(mol. weight dependence and melt stability effects on crystallization and thermal

stability of)

crystalline material and their preparation and use

INVENTOR(S): Johann-Rees, Christoph; Jung, Silvia; Doppelberger, Johann; Goebelmeier, Walter

PATENT ASSIGNEE(S): Consortium fuer Elektrochemische Industrie GmbH, Germany

SOURCE: Ger. Offen., 14 pp.

CODEN: GWXXBX

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO. KIND DATE APPLICATION NO. DATE

DE 4416191 A1 19951109 DE 1994-4416191 19940506 <--

JP 07304993 A 19951121 JP 1995-107601 19950501 <--

US 5851604 A 19981222 US 1995-432298 19950501 <--

CA 2148573 A1 19951107 CA 1995-2148573 19950503 <--

CA 2148573 C 19990914 19950503 <--

EP 686674 A1 19951213 EP 1995-106759 19950504 <--

EP 686674 B1 19980128 19950504 <--

R: CH, DE, FR, GB, IT, LI, SE

KR 149390 B1 19981001 19950504 <--

PRIORITY APPL. INFO.: DE 1994-4416191 A 19940506 <--

AB Pigment platelets of thickness 1-20 µm containing an oriented crosslinked substance with liquid-crystalline structure having a chiral phase provide a pearlescent effect. Thus, a solution of cholesterol 4-(allyloxy)benzoate 233, 4-(trimethylsilyloxy)phenyl 4-(allyloxy)benzoate 178, and tetramethylcyclotetrasiloxane 56.9 g in 400 mL toluene has heated in the presence of a Pt complex catalyst, heated with NaOH to remove the Me3Si group, concentrated, condensed with methacrylic anhydride, and the product precipitated to give a polymer with glass-transition temperature 14° and forming a liquid-crystalline melt. This material was warmed, mixed with Irgacure 907, coated at 7-µm thickness on a PET film, and cured by UV irradiation; the cured coating was removed from the substrate film, milled, and sieved to give a red pearlescent pigment.

IC ICM C09B067-20

ICS C09B067-22; C09K019-38; C09D017-00; C09D005-28; C09D005-29; C09D005-36; C09D005-02; C09D005-46; C09D005-03; B29B015-08; A61K007-00

ICA C09D183-04; C09D163-00; C09D133-00; C09D193-00; C05D135-00; C09D101-08; C09D161-14; C09D161-20

CC 42-6 (Coatings, Inks, and Related Products)

Section cross-reference(s): 75

ST Interference pigment liq. cryst siloxane

IT Liquid crystals, polymeric

Pigments

(interference pigments of a crosslinked liquid-crystalline material)

Siloxanes and Silicoes, uses

RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PRP (Preparation); USES (Uses)

(interference pigments of a crosslinked liquid-crystalline material)

2370-88-9DP, Tetramethylcyclotetrasiloxane, reaction products with (allyloxy)benzoate esters, polymers, crosslinked. 35109-51-4DP, Cholesterol methacrylate, polymers with acrylic siloxanes 83953-73-5DP, reaction products with tetramethylcyclotetrasiloxane, polymers, crosslinked. 121057-35-ODP, reaction products with tetramethylcyclotetrasiloxane, polymers, hydrolyzed, methacrylate ester, crosslinked

RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(Interference pigments of a crosslinked liquid-crystalline material)  
IT 760-92-0, Methacrylic anhydride  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(reaction with ethylphenyl hydroxybenzoate)

LI52 ANSWER 30 OF 55 HCAPLUS COPYRIGHT 2007 ACS on STN  
ACCESSION NUMBER: 1993:466034 HCAPLUS Full-text  
DOCUMENT NUMBER: 122:188836  
TITLE: Miscibility and Crystallization Behavior of Poly(ethylene terephthalate)/Poly(ether imide) Blends

AUTHOR(S): Chen, Hsin-Lung  
CORPORATE SOURCE: Department of Chemical Engineering, Chang Gung College of Medicine and Technology, Taoyuan, 33333, Taiwan  
SOURCE: Macromolecules (1995), 28(6), 2845-51  
CODEN: MAMOBX; ISSN: 0024-9297  
PUBLISHER: American Chemical Society  
DOCUMENT TYPE: Journal

LANGUAGE: English  
AB The miscibility and crystallization behavior of poly(ethylene terephthalate) (PET)/Ultem 1000 poly(ether imide) (PEI) blends have been investigated by differential scanning calorimetry (DSC) and optical microscopy. PET/PEI blends were prepared by solution precipitation from two solvents: a phenol/tetrachloroethane mixed solvent and dichloroacetic acid. It was found that the compatibility of the as-prepared blends depended on the solvent used. Dichloroacetic acid appeared to provide better segmental mixing for PET and PEI than the mixed solvent of phenol and tetrachloroethane. The compatibility of the blends as prepared from both solvents could be enhanced by melt annealing. The composition dependence of T<sub>g</sub> of PET/PEI blends exhibited a cusp at the composition of wPEI ≈ 0.60 and was analyzed using the classical Gordon-Taylor's equation and the free volume theory of Braun-Kovacs. The PET crystallinity measured from the enthalpy of melting displayed a monotonic drop with increasing PEI content in the composition range of wPEI > 0.4, while it stayed approx. constant for wPEI < 0.4. The effect of blending with PEI on the multiple melting behavior of PET was also investigated. The highest melting endotherm was found to diminish with increasing PEI content in the blends, showing that the recrystallization of PET after the initial melting was hindered by the presence of PEI. After the crystallization of PET, a strong segregation of PEI was observed. Such segregation of PEI was accompanied with a significant increase in spherulitic nucleation d. The monitoring of the T<sub>g</sub> shift during crystallization and the morphol. observation by optical microscopy suggested that the crystallization was coupled with a liquid-liquid phase separation, where the miscible melt demixed into the PET-enriched phase and the PEI-rich phase. The morphol. created by the liquid-liquid phase separation and the nucleation at the domain interfaces may account for the drastic increase in nucleation d.

CC 36-6 (Physical Properties of Synthetic High Polymers)  
ST crystallinity poly(ethylene terephthalate) polyester polyimide blend; polyester polyether polyimide blend crystallinity miscibility; polyethylene terephthalate polyether polyimide blend miscibility

IT Solvent effect  
(in blend preparation); on miscibility and crystallization behavior of poly(ethylene terephthalate) blends with polyether-polyimide  
IT Plastics  
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)  
PROC (Process)  
(miscibility and crystallization behavior of poly(ethylene terephthalate) blends with polyether-polyimide)

IT Crystallinity  
Crystallization

Glass temperature and transition

(of poly(ethylene terephthalate) blends with polyether-polyimide)  
IT Polyimides, properties  
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)

(polyether-, miscibility and crystallization behavior of poly(ethylene terephthalate) blends with polyether-polyimide)  
IT Polyethers, properties  
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)

(polyimide-, miscibility and crystallization behavior of poly(ethylene terephthalate) blends with polyether-polyimide)  
IT 25038-59-9, Poly(ethylene terephthalate), properties 61128-24-3, Ultem 1000 61128-46-9, 2,2-Bis[4-(3,4-dicarboxyphenoxy)phenyl]propane dianhydride-m-phenylenediamine copolymer  
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)  
(miscibility and crystallization behavior of poly(ethylene terephthalate) blends with polyether-polyimide)

LI52 ANSWER 31 OF 55 HCAPLUS COPYRIGHT 2007 ACS on STN  
ACCESSION NUMBER: 1993:409252 HCAPLUS Full-text  
DOCUMENT NUMBER: 119:9252

TITLE: LC polyimides. 10. Poly(ester imides) derived from pyromellitic dianhydride and ω-amino acids and various diphenols or α,ω-diols  
Kricheldorf, Hans R.; Pakull, Ralf; Schwarz, Gert  
CORPORATE SOURCE: Inst. Tech. Makromol. Chem., Univ. Hamburg, Hamburg, 2000/13, Germany  
SOURCE: Makromolekulare Chemie (1993), 194(4), 1209-24  
CODEN: MACEAK; ISSN: 0025-116X

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Six dicarboxylic acids were prepared from pyromellitic dianhydride and ω-amino acids, i.e. glycine, 4-aminobutyric acid, 5-aminopentanoic acid, 6-aminohexanoic acid, 11-aminoundecanoic acid, and 12-aminododecanoic acid. Polyesters were prepared from these dicarboxylic acids and 4,4'-biphenyldiol, 2,6-dihydroxynaphthalene, 2,7-dihydroxynaphthalene, and methyl-, chloro-, and phenylhydroquinone. All polyesters were characterized by elemental analyses, viscosity, and DSC measurements, and by optical microscopy. Several polyesters were also characterized by wide-angle x-ray scattering powder patterns, penetration measurements, and TGA. These polyesters derived from highly sym. diphenols and diols were highly crystalline (>90%) and formed a layer structure in the solid state. An amorphous phase was not detectable and the heat distortion temperature corresponded to the m.p. Poly(ester imides) derived from less sym. diphenols were semicryst. and glass transition temps. were detectable. However, true liquid-crystalline phases were never found.

CC 35-5 (Chemistry of Synthetic High Polymers)

ST Section cross-reference(s): 36  
Polyester polyimide pyromellitic anhydride based; crystallinity morphol polyester polyimide

IT Crystallinity

Glass temperature and transition

Polymer morphology  
(of pyromellitic anhydride-based polyester polyimides, structure effect on)

IT Polyimides, preparation  
 RL: SPN (Synthetic preparation); *PREP (Preparation)*  
 IT Polyesters, preparation  
 RL: SPN (Synthetic preparation and crystallinity and morphol. of)  
 IT Polyimides, preparation and crystallinity and morphol. of  
 RL: SPN (Synthetic preparation); *PREP (Preparation)*  
 125776-59-2P 146185-57-1P 146219-77-4P 147881-39-8P 147881-39-8P  
 147881-40-1P 147934-31-4P 147934-32-5P 147934-33-6P 147934-34-7P  
 147934-35-8P 147934-36-9P 147934-37-0P 147934-38-1P 147934-39-2P  
 147934-40-5P 147934-41-6P 148130-62-5P 148130-63-6P 148130-64-7P  
 148130-65-8P 148130-66-9P 148130-67-0P 148130-68-1P 148130-69-2P  
 148130-70-5P 148130-71-6P 148130-72-7P 148130-73-8P 148130-74-9P  
 148130-75-0P 148130-76-1P 148130-78-3P 148130-79-4P  
 RL: SPN (Synthetic preparation); *PREP (Preparation)*  
 (preparation and crystallinity and morphol. of)  
 L152 ANSWER 32 OF 55 HCAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 1992:427290 HCAPLUS Full-text  
 DOCUMENT NUMBER: 117:27290  
 TITLE: Organo-soluble, segmented rigid-rod polyimides:  
 synthesis and properties  
 HARRIS, F. W.; HSU, S. L. C.; LEE, C. J.; LEE, B. S.;  
 ARNOLD, F.; CHENG, S. Z. D.  
 Inst. Polym. Sci., Univ. Akron, Akron, OH, 44325-3909,  
 USA  
 SOURCE: Materials Research Society Symposium Proceedings (1991), 227(Mater. Sci. High Temp. Polym. Microelectron.), 3-9  
 COTEN: MRSPDH; ISSN: 0272-9172  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 AB 2,2'-Bis(trifluoromethyl)-4,4'-diaminobiphenyl (I) is polycondensed with 6 different dicarboxylic acid dianhydrides to form fluorinated polyimides. The solubility of the polyimides in organic solvents is measured. Tough, colorless films can be cast from m-cresol at 100°. The polyimides have glass transition temps. >275° and have good thermal and thermooxidative properties. Fibers are prepared from I and 3,3',4,4'-tetracarboxybiphenyl dianhydride with moduli of 130 GPa and tensile strength of 3.2 GPa. The thermal expansion coeffs. and dielec. consts. of the films are -2.4 + 10-6 and 2.5, resp. The polyimide based on I and 4,4'-hexafluoroisopropylidenebis(phthalic anhydride) shows liquid crystalline spherulites.  
 CC 35-5 (Chemistry of Synthetic High Polymers)  
 Section cross-reference(s): 36, 40, 75  
 IT Polymerization  
 (of bis(trifluoromethyl)diaminobiphenyl with dicarboxylic dianhydrides)  
 IT Birefringence  
 Dielectric constant and dispersion  
 Glass temperature and transition  
 (of fluorinated polyimides)  
 IT Synthetic fibers, polymeric  
 RL: SPN (Synthetic preparation); *PREP (Preparation)*  
 (biphenyltetracarboxylic dianhydride-  
 bis(trifluoromethyl)benzidine, preparation and mech. and thermal and dielec. properties of)  
 IT Synthetic fibers, polymeric  
 RL: SPN (Synthetic preparation); *PREP (Preparation)*  
 (biphenyltetracarboxylic dianhydride-  
 bis(trifluoromethyl)benzidine-pyromellitic dianhydride,

preparation and mech. and thermal and dielec. properties of)  
 IT Polyimides, preparation  
 RL: SPN (Synthetic preparation); *PREP (Preparation)*  
 (fluorine-containing, (liquid crystalline), preparation and mech. and thermal and  
 dielec. properties of)  
 IT Polyimides, preparation  
 Polyimides, uses  
 RL: SPN (Synthetic preparation); *PREP (Preparation)*  
 (fluorine-containing, fiber, preparation and mech. and thermal and dielec. properties of)  
 IT Polyimides, preparation  
 RL: SPN (Synthetic preparation); *PREP (Preparation)*  
 (polyether-, fluorine-containing, preparation and mech. and thermal and dielec. properties of)  
 IT Fluoropolymers  
 RL: SPN (Synthetic preparation); *PREP (Preparation)*  
 (polyether-polyimide-, preparation and mech. and thermal and dielec. properties of)  
 IT Fluoropolymers  
 RL: SPN (Synthetic preparation); *PREP (Preparation)*  
 (polyimide-, fluorine-contg, preparation and mech. and thermal and dielec. properties of)  
 IT Polyethers, preparation  
 Polyketones  
 RL: SPN (Synthetic preparation); *PREP (Preparation)*  
 (polyimide-, fluorine-containing, preparation and mech. and thermal and dielec. properties of)  
 IT Fluoropolymers  
 RL: SPN (Synthetic preparation); *PREP (Preparation)*  
 (polyimide-polyketone-, preparation and mech. and thermal and dielec. properties of)  
 IT Fluoropolymers  
 RL: SPN (Synthetic preparation); *PREP (Preparation)*  
 (polyimide-polyketone-, preparation and mech. and thermal and dielec. properties of)  
 IT Polyimides, preparation  
 RL: SPN (Synthetic preparation); *PREP (Preparation)*  
 (polyketone-, fluorine-containing, preparation and mech. and thermal and dielec. properties of)  
 IT Polyimides, preparation  
 RL: SPN (Synthetic preparation); *PREP (Preparation)*  
 (polysulfone-, fluorine-containing, preparation and mech. and thermal and dielec. properties of)  
 IT 129219-16-5P 129219-45-0P 134190-66-2P  
 RL: SPN (Synthetic preparation); *PREP (Preparation)*  
 ((fibers), preparation and mech. and thermal and dielec. properties of)  
 IT 129197-26-8P 129219-42-7P  
 RL: SPN (Synthetic preparation); *PREP (Preparation)*  
 (liquid crystalline, preparation and mech. and thermal and dielec. properties of)  
 IT 129197-24-6P 129197-25-7P 129197-27-9P 129219-15-4P 129219-40-5P

129219-41-6P 129219-43-8P 129219-44-9P  
 RL: SPN (Synthetic preparation); **PREP (Preparation)**  
 (preparation and mech. and thermal and dielec. properties of)

LI52 ANSWER 33 OF 55 HCAPLUS COPYRIGHT 2007 ACS on SPN  
 ACCESSION NUMBER: 1992:184568 HCAPLUS Full-text  
 DOCUMENT NUMBER: 116:184568  
 TITLE: Low fusing **temperature** toner powder of cross-linked crystalline and amorphous polyester blends

INVENTOR(S): McCabe, John M.; Wilson, John C.  
 PATENT ASSIGNEE(S): Eastman Kodak Co., USA  
 SOURCE: U.S., 9 pp.  
 CODEN: USKXAM

DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO. KIND DATE APPLICATION NO. DATE  
 -----  
 US 5057392 A 19911015 US 1990-563003 19900806 <--  
 US 1990-563003 19900806 <--  
 AB A process for preparing a blend for a low fusing **temperature** toner powder comprises: (a) admixing together: (1) a crystalline polyester (c-PE) having a glass **transition temperature** (Tg) of about -5 to about 10°, a m.p. of .apprx.90-110° a number average mol. weight (.hivin.Mn) of .apprx.1000-3000, and a weight average mol. weight (.hivin.Mw) of .apprx.2000-6000; of .apprx.55-75°, a .hivin.Mn .apprx.1000-3000, and a .hivin.Mw of .apprx.2000-9000, and containing an average of .apprx.0.1-1.0 reactable carboxyl groups per mol.; (3) a low mol. weight epoxy novolac resin having an epoxy functionality of .apprx.2.5-6; and (4) a crosslinking catalyst; (b) melt blending the mixture at .apprx.50-240°; and (c) annealing the melt blended mixture at a **temperature** above the Tg of the a-PE and below the m.p. of the c-PE to recrystallize as dispersed small particles within a matrix phase comprised of a cross-linked polymeric reaction product of the a-PE and the epoxy novolac resin. The polymer blend is also claimed. The toner has excellent storage and grindability properties.

IC ICM C08F020-00  
 ICS G03G009-08

INCL 430109000  
 CC 74-3 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

IT Electrophotographic developers

IT 58901-63-6, 1,4-Butanediol-1,6-hexanediol-isophthalic acid-terephthalic acid copolymer 62511-49-3, 1,4-Butanediol-1,6-hexanediol-terephthalic acid copolymer 123399-94-0D, reaction product with trimellitic **anhydride**

RL: USES (Uses)  
 IT 532-30-7D, electrophotog. toners with blend containing)  
 140448-42-6  
 RL: USES (Uses)  
 (electrophotog. toners with blend containing)

IT 139941-93-8DP, reaction product with trimellitic **anhydride**  
 RL: RCT (Reactant); **PREP (Preparation)**; **RACT (Reactant or reagent)**  
 (preparation and crosslinking of, with epoxy resin, electrophotog. toners with blend containing)

IT 139941-94-9DP, reaction product with trimellitic **anhydride**  
 RL: **PREP (Preparation)**  
 (preparation of, for electrophotog. toner blend)

LI52 ANSWER 34 OF 55 HCAPLUS COPYRIGHT 2007 ACS on SPN  
 ACCESSION NUMBER: 1991:681094 HCAPLUS Full-text  
 DOCUMENT NUMBER: 115:281094  
 TITLE: Chemistry and properties of controlled molecular weight end-capped LARC-CPI

AUTHOR(S): Hergenrother, Paul M.; Havens, Stephen J.  
 CORPORATE SOURCE: Langley Res. Cent., NASA, Hampton, VA, 23665-5225, USA  
 SOURCE: International SAMPE Symposium and Exhibition (1991), 36(1), 56-67  
 CODEN: ISSEEG; ISSN: 0891-0138

DOCUMENT TYPE: Journal  
 LANGUAGE: English

AB The title aromatic poly(ether ketone imide) having phthalic **anhydride** terminal group was prepared and characterized, and various properties of its graphite fiber laminates were studied. As the mol. wts. (M) of the polymer decreased, the fracture energy also decreased significantly while the crystallization rate increased. Although the polymer showed an acceptable toughness at M = 10,871 g/mol, the films of this polymer were brittle. After quenching the sample at 375° and returning, a glass **temperature** at 209°, an exothermic peak at 227° due to crystallization, and an endothermic peak at 351° due to melting of the crystalline region were observed. As M decreased, the polymer became easier to compression mold. The polymer with M = 8236 g/mol gave high Ti-Ti adhesive tensile shear strengths at 24, 177, and 200° and unidirectional unsized graphite fiber laminates with good flexural properties at 24, 200, and 232°. Excellent retention of laminate flexural properties were observed at 200° after aging for 100 h at 316° in circulating air.

CC 37-4 (Plastics-Manufacture and Processing)

ST Section cross-reference(s): 35, 38

IT **anhydride** endcapped polyimide LARC CPI; mol wt endcapped polyimide property; thermal property **anhydride** endcapped polyimide; mech property **anhydride** endcapped polyimide; adhesive strength endcapped polyimide titanium; polyether polyketone polyimide endcap property

IT Heat-resistant materials  
 (anhydride-endcapped polyether-polyketone-polyimide-graphite fiber laminates, preparation and characterization of)

IT **Crystallization**  
 Glass **temperature** and transition  
 (of **anhydride**-endcapped polyether-polyketone-polyimide, mol. weight effect on)

IT Adhesion

IT (of **anhydride**-endcapped polyether-polyketone-polyimide, to titanium alloy, tensile strength in relation to, mol. weight effects in) Polymerization

IT (of benzophenonetetracarboxylic **dianhydride**, with bis(aminophenoxylbenzoyl)benzene, in preparation of controlled mol.-weight end-capped polyether-polyketone-polyimide)

IT Molding of plastics and rubbers

IT (compression, of **anhydride**-endcapped polyether-polyketone-polyimide, mol. weight effect on)

IT Carbon fibers, properties

RL: PRP (Properties)

IT (graphite, **anhydride**-endcapped polyether-polyketone-polyimide laminates, mech. and adhesive properties of, mol. weight effects in) Amidation

IT (imidation, of **anhydride**-endcapped

- benzophenonetetracarboxylic dianhydride-  
bis(aminophenoxybenzoyl)benzene copolymers, mol. weight effects in)
- IT Polyketones  
RL: SPN (Synthetic preparation); *PREP (Preparation)*  
(polyether-polyimide-, aromatic, *anhydride*-endcapped, preparation and characterization of neat and carbon-fiber laminates of, mol. weight effects in)
- IT Polyimides, preparation  
RL: SPN (Synthetic preparation); *PREP (Preparation)*  
(polyether-polyketone-, aromatic, *anhydride*-endcapped, preparation and characterization of neat and carbon-fiber laminates of, mol. weight effects in)
- IT Polyethers, preparation  
RL: SPN (Synthetic preparation); *PREP (Preparation)*  
(polyimide-polyketone-, aromatic, *anhydride*-endcapped, preparation and characterization of neat and carbon-fiber laminates of, mol. weight effects in)
- IT Crosslinking  
(thermal; of *anhydride*-endcapped polyether-polyketone-polyimide-graphite, fiber laminates, mol. weight effects in)
- IT 12743-70-3, Ti, 6Al-4V  
RL: USES (Uses)  
(adhesion to, of *anhydride*-endcapped polyether-polyketone-polyimide, tensile strength in relation to)
- IT 7440-44-0 7782-42-5  
RL: USES (Uses)  
(carbon fibers, graphite, *anhydride*-endcapped polyether-polyketone-polyimide laminates, mech. and adhesive properties of, mol. weight effects in)
- IT 103320-42-9P 107194-52-5P 126368-03-4P  
RL: SPN (Synthetic preparation); *PREP (Preparation)*  
(preparation and characterization of neat and carbon-fiber laminates of, mol. weight effects in)
- LI52 ANSWER 35 OF 55 HCAPLUS COPYRIGHT 2007 ACS on STN  
ACCESSION NUMBER: 1991:493360 HCAPLUS Full-text  
DOCUMENT NUMBER: 115:93360  
TITLE: Wide-line deuterium nuclear magnetic resonance studies of N-deuterated nylon 6, nylon 11 and N-n-propyl stearamide  
AUTHOR(S): Colletti, Ronald F.; Jeno, Muthiah; Mathias, Lon J.  
CORPORATE SOURCE: Dep. Polym. Sci., Univ. South. Mississippi, Hattiesburg, MS, 39406-0076, USA  
SOURCE: Polymer Communications (1991), 32(11), 332-5  
CODEN: POCODE; ISSN: 0263-6476  
DOCUMENT TYPE: Journal  
LANGUAGE: English  
AB Mol. dynamics of the Brill transition, a reversible solid-solid *crystal* transition, in D-labeled nylon 6 (I), nylon 11 (II), and model compound, N-n-Pr stearamide (III), was studied via solid-state D-NMR. Selective deuteration on the N was accomplished using acylation with trifluoroacetic *anhydride* followed by *precipitation* and deacylation in D<sub>2</sub>O. Deuterium spectra of the *crystalline* component of II indicated that there was no significant increase in motion of the N-2H bond occurring during the *crystal-crystal* transition. I and III data also did not show significant motional *transitions* or changes with increasing *temperature*, and maintain rigid H-bonded lattices up to their m.ps.  
CC 36-3 (Physical Properties of Synthetic High Polymers)  
ST Section cross-reference(s): 77  
deuterated polyamide *crystal* transition NMR; nylon Brill

- transition deuterated NMR; propyl stearamide motional transition NMR  
IT Chains, chemical  
(dynamics of, of nylon 6 and nylon 11, *crystal* transitions in relation to, solid-state deuterated NMR study of)
- IT Polyamides, properties  
RL: PRP (Properties)  
(11, *crystal* transition in, mol. dynamics of, solid-state deuterated NMR study of)
- IT 25035-04-5D, Nylon 11, trifluoroacetated, N-deuterated 25038-54-4D, Nylon 6, trifluoroacetated, N-deuterated 25587-80-8D, trifluoroacetated, N-deuterated  
RL: PRP (Properties)  
(*crystal* transition in, mol. dynamics of, solid-state deuterated NMR study of)
- LI52 ANSWER 36 OF 55 HCAPLUS COPYRIGHT 2007 ACS on STN  
ACCESSION NUMBER: 1991:451635 HCAPLUS Full-text  
DOCUMENT NUMBER: 115:51635  
TITLE: Polyamide block copolymers  
INVENTOR(S): Ootsuki, Toshitaka; Tadaki, Toshihiro; Niwa, Kazuaki  
PATENT ASSIGNEE(S): Japan Synthetic Rubber Co., Ltd., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 11 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:
- | PATENT NO.  | KIND | DATE     | APPLICATION NO. | DATE         |
|-------------|------|----------|-----------------|--------------|
| JP 03086717 | A    | 19910411 | JP 1989-223165  | 19890831 <-- |
| AB          |      |          | JP 1989-223165  | 19890831 <-- |
- PRIORITY APPL. INFO.:  
Thermally stable soft transparent polymers contain blocks of saturated hydrocarbons and polyamides having glass *transition temp.* 70-230° and *crystallinity* 51% as determined by a wide-angle x-ray anal. Thus, isophthalic acid 38.2, adipic acid 33.6, hydrogenated carboxy-terminated polybutadiene 216, and LiCl 0.2 g in 1000 mL 1,3-dimethylethyleneurea was stirred at 200°, mixed with 125.1 g MDI, stirred an addnl. 2 h at 200°, mixed with 1.2 g benzoic acid for 1 h at 200°, followed by 1.7 g 1-naphthyl isocyanate, *precipitated* in methanol, and molded to prepare test pieces having tensile strength 300 kg/cm<sup>2</sup>, elongation 420%, Vicat softening *temperature* 157°, and a *noncryst.* polyamide segments.
- IC ICM C08G018-34.  
ICS C08G069-02  
CC 39-3 (Synthetic Elastomers and Natural Rubber)  
IT 91-97-4DP, 3,3'-Dimethylbiphenyl 4,4'-diisocyanate, block polymers with adipic acid and carboxy-terminated polyisobutylene and isophthalic acid 110-15-6DP, Butanedioic acid, esters with hydrogenated hydroxy-terminated polybutadiene, block polymers with carboxylic acids and toluene diisocyanate 121-91-3DP, 1,3-Benzenedicarboxylic acid, block polymers with adipic acid and diphenylmethane diisocyanate, and hydrogenated carboxy-terminated polybutadiene 123-99-9DP, A:elalc acid, block polymers with diphenylmethane diisocyanate and isophthalic acid and hydrogenated carboxy-terminated acrylonitrile-butadiene copolymers 124-04-9DP, Hexanedioic acid, block polymers with diphenylmethane diisocyanate and hydrogenated carboxy-terminated polybutadiene and isophthalic acid 584-84-9DP, block polymers with carboxylic acid and hydrogenated carboxy-terminated polybutadiene 9003-17-2DP, Polybutadiene, carboxy-terminated, hydrogenated, block polymers with adipic acid and diphenylmethane diisocyanate and isophthalic acid

9003-18-3DP, Acrylonitrile-butadiene copolymer, carboxy-terminated, hydrogenated, block polymers with carboxylic acids and diphenylmethane diisocyanate. 9003-27-4DP, Polyisobutylene, carboxy-terminated, block polymers with adipic acid and dimethylbiphenyl diisocyanate and isophthalic acid. 9003-55-8DP, Butadiene-styrene copolymer, hydroxy-terminated, hydrogenated, esters with succinic **anhydride**, block polymers with carboxylic acids and diphenylmethane diisocyanate. RL: PREP (Preparation) (manufacture of, heat-stable)

LI52 ANSWER 37 OF 55 HCAPLUS COPYRIGHT 2007 ACS on STN  
ACCESSION NUMBER: 1991:409499 HCAPLUS Full-text

DOCUMENT NUMBER: 115:9499  
TITLE: LC-polyimides. 5. Poly(ester imides) derived from N-(4-carboxyphenyl)trimellitimide and  $\alpha,\omega$ -dihydroxyalkanes

AUTHOR(S): Kricheldorf, Hans R.; Schwarz, Gert; De Abajo, Javier; De-la Campa, Jose G.  
CORPORATE SOURCE: Univ. Inst. Tech. Macromol. Chem., Hamburg, D-2000, Germany

SOURCE: Polymer (1991), 32(5), 942-9  
CODEN: POLMAG; ISSN: 0032-3861

DOCUMENT TYPE: Journal  
LANGUAGE: English

AB N-(4-Carboxyphenyl)trimellitimide was prepared from trimellitic **anhydride** and 4-aminobenzoic acid and esterified with MeOH. Transesterification with  $\alpha,\omega$ -dihydroxyalkanes in the melt yielded a series of poly(ester imides) with varying spacer lengths. These poly(ester imides) were characterized by elemental analyses, inherent viscosities, DSC measurements, wide-angle X-ray spectroscopy powder and fiber patterns, including synchrotron radiation measurements at variable **temperature**, optical microscopy with polarized light, and TGA. Poly(ester imides) with even-numbered spacers could form 3 different kinds of solid phase, including a smectic glass and a crystalline smectic phase. Fiber patterns of melt-spun fibers indicated a high degree of order for a series of subsequent layers even when any order inside the layers was lacking. Poly(ester imides) with odd-numbered spacers crystallized much more slowly and could be quenched from the isotropic melt, so that isotropic glasses could be obtained.

CC 35-5 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 36, 75

IT **Glass temperature and transition**  
(of trimellitic **anhydride**-based liquid-crystalline polyester-polyimides).

IT Liquid crystals  
(trimellitic **anhydride**-based polyester-polyimides, preparation and phase transitions of)

IT Polyimides, preparation

RL: SPN (Synthetic preparation); PREP (Preparation)

IT (polyester-, liquid-crystalline, preparation and phase transitions of) Polyesters, preparation

RL: SPN (Synthetic preparation); PREP (Preparation)

IT (polyimide-, liquid-crystalline, preparation and phase transitions of) (polyimide-, liquid-crystalline, preparation and phase transitions of)

RL: RCT (Reactant); RACT (Reactant or reagent)

(Me esterification of)

IT 134197-26-5P 134197-27-6P 134197-28-7P 134197-29-8P 134197-30-1P

134197-31-2P 134197-32-3P 134197-33-4P

RL: SPN (Synthetic preparation); PREP (Preparation)

(liquid-crystalline, preparation and phase transitions of)

IT 53038-19-0P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(preparation and polymerization of, with diols)

LI52 ANSWER 38 OF 55 HCAPLUS COPYRIGHT 2007 ACS on STN  
ACCESSION NUMBER: 1991:165273 HCAPLUS Full-text

DOCUMENT NUMBER: 114:165273

TITLE: Layered structure in copolymers of maleic **anhydride** and alkyl vinyl esters

AUTHOR(S): Oshima, Toru; Ichikawa, Kenichi; Tasaka, Shigeru; Inagaki, Norihiro

CORPORATE SOURCE: Fac. Eng., Shizuoka Univ., Hamamatsu, 432, Japan

SOURCE: Kobunshi Ronbunshu (1991), 48(2), 105-10

CODEN: KBRBA3; ISSN: 0386-2186

DOCUMENT TYPE: Journal

LANGUAGE: Japanese

AB The structure and thermal properties of copolymers of maleic **anhydride** and vinyl esters were investigated by X-ray diffraction and DSC. In spite of the perfect alternating sequence of the comonomers, the copolymers were glassy polymers because of the atacticity of vinyl esters in the polymer sequence. The glass transition **temp.** of these polymers were all approx. 130°. X-ray diffraction patterns suggested that a layered structure having the title side chains was formed by aggregation between polar groups. On doping with tricresyl phosphate as a plasticizer, the spacing between the layers increased steeply in polymers with long side chains. This phenomenon suggested that the long alkyl ester copolymers can be intercalated with the plasticizers.

CC 36-2 (Physical Properties of Synthetic High Polymers)

ST maleic **anhydride** copolymer layered structure; vinyl ester

copolymer layered structure; glass **temp** vinyl ester copolymer

IT **Glass temperature and transition**

(of maleic **anhydride**-vinyl ester copolymers)

IT Crystal structure

(of maleic **anhydride**-vinyl ester copolymers, tricresyl phosphate plasticizer effect on)

IT Chains, chemical

(structure of, of maleic **anhydride**-vinyl ester copolymers,

tricresyl phosphate plasticizers effect on)

IT Plasticizers

(tricresyl phosphate, for maleic **anhydride**-vinyl ester

copolymers, lattice spacing in relation to)

IT 1330-78-5, Tricresyl phosphate

RL: MOA (Modifier or additive use); USES (Uses)

(plasticizers, for maleic **anhydride**-vinyl ester copolymers,

lattice spacing in relation to)

LI52 ANSWER 39 OF 55 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1990:407202 HCAPLUS Full-text

DOCUMENT NUMBER: 113:7202

TITLE: Morphological characterization of bioerodible polymers. 1. Crystallinity of **polyanhydride** copolymers.

AUTHOR(S): Mathiowitz, Edith; Ron, Eyal; Mathiowitz, George;

Amato, Carmela; Langer, Robert

CORPORATE SOURCE: Dep. Chem. Eng., Massachusetts Inst. Technol.,

Cambridge, MA, 02139, USA

SOURCE: Macromolecules (1990), 23(13), 3212-18

CODEN: MAMOBX; ISSN: 0024-9297

DOCUMENT TYPE: Journal

LANGUAGE: English





(spherulitic, of maleic **anhydride**-octadecene copolymer-linear LDPE blends)

IT Alkenes, polymers

RL: PRP (Properties)

( $\alpha$ -, polymers with ethylene, linear low-d., maleic **anhydride**-octadecene copolymer blends, thermal, dynamic mech. and rheol. properties of)

IT 74-85-1D, Ethylene, polymers with  $\alpha$ -olefins

RL: PRP (Properties)

(linear low-d., maleic **anhydride**-octadecene copolymer blends, thermal, dynamic mech. and rheol. properties of)

IT 117925-22-1

RL: PRP (Properties)

(maleic **anhydride**-octadecene copolymer blends, thermal, dynamic mech. and rheol. properties of)

L152 ANSWER 42 OF 55 HCAPLUS COPYRIGHT 2007 ACS on SPN

1988:438328 HCAPLUS Full-text

ACCESSION NUMBER:

DOCUMENT NUMBER:

TITLE:

New polymer syntheses. 24. Liquid crystal poly(ester imides) derived from benzophenonetetracarboxylic

**dianhydride** and  $\omega$ -amino acids

Kricheldorf, Hans R.; Pakull, Ralf; Buchner, Stefan

Inst. Tech. Makromol. Chem., Univ. Hamburg, Hamburg, D-2000/13, Fed. Rep. Ger.

Macromolecules (1988), 21(7), 1929-35

CODEN: MAMOBX; ISSN: 0024-9297

LANGUAGE: English

AB  $\omega$ -amino acids were treated with 3,3',4,4'-benzophenonetetracarboxylic

**dianhydride** to give diacid imides, which were polymerized with diacetates of hydroquinone, 2,6-naphthalenediol, or 4,4'-dihydroxybiphenyl (I) to give polyester polyimides. Almost all polymers containing I formed a smectic melt.

An odd-even effect was found for the heat-distortion temperature of the liquid-crystalline polymers.

35-5 (Chemistry of Synthetic High Polymers)

CC Section cross-reference(s): 75

IT Liquid crystals

(benzophenone tetracarboxylic **anhydride**-based polyester-polyimides, preparation and properties of)

IT Glass temperature and transition

Polymer morphology

(of liquid-crystalline benzophenone tetracarboxylic **anhydride**-based polyester-polyimides)

IT Polyketones

RL: PRP (Properties); SPN (Synthetic preparation); **PREP** (Preparation)

(polyester-polyimide-, benzophenonetetracarboxylic **dianhydride**-based, liquid-crystalline, preparation and properties of)

IT Polyimides, preparation..

RL: PRP (Properties); SPN (Synthetic preparation); **PREP** (Preparation)

(polyester-polyketone-, benzophenonetetracarboxylic **dianhydride**-based, liquid-crystalline, preparation and properties of)

IT Polyesters, preparation

RL: PRP (Properties); SPN (Synthetic preparation); **PREP** (Preparation)

(polyketone-polyimide-, benzophenonetetracarboxylic **dianhydride**-based, liquid-crystalline, preparation and properties of)

IT 38702-19-1P, Adipic acid-neopentyl glycol-phthalic **anhydride**

IT 114505-43-0P 114505-51-0P 114505-52-1P 114505-53-2P 114505-54-3P  
114505-55-4P 114505-65-6P 114505-73-6P 114505-74-7P 114505-75-8P  
114505-76-9P 114505-77-0P

RL: PRP (Properties); SPN (Synthetic preparation); **PREP** (Preparation)

(liquid-crystalline, preparation and properties of)

IT 71685-31-9P 104677-73-8P 114505-30-5P 114505-31-6P 114505-32-7P

RL: RCT (Reactant); SPN (Synthetic preparation); **PREP** (Preparation); **RACT** (Reactant or reagent)

(preparation and polymerization of)

IT 114505-39-4P 114505-40-7P 114505-41-8P 114505-42-9P 114505-44-1P

114505-45-2P 114505-46-3P 114505-47-4P 114505-48-5P 114505-49-6P

114505-50-9P 114505-56-5P 114505-60-1P 114505-61-2P 114505-62-3P

114505-63-4P 114505-66-7P 114505-67-8P 114505-68-9P 114505-69-0P

114505-70-3P 114505-71-4P 114505-72-5P 114505-78-1P

RL: PRP (Properties); SPN (Synthetic preparation); **PREP** (Preparation)

(preparation and properties of)

IT 6097-14-9P 114505-33-8P 114505-34-9P 114505-35-0P 114505-36-1P

114505-37-2P 114505-38-3P

RL: SPN (Synthetic preparation); **PREP** (Preparation)

(preparation of, as model for polyester-polyimides)

L152 ANSWER 43 OF 55 HCAPLUS COPYRIGHT 2007 ACS on SPN

ACCESSION NUMBER: 1987:408949 HCAPLUS Full-text

DOCUMENT NUMBER: 107:8949

TITLE: Synthesis of crosslinkable liquid-crystalline

oligoester diols by direct esterification; use in

coatings binders

Wang, Daozhang; Jones, Frank N.

Dep. Polym. Coat., North Dakota State Univ., Fargo, ND, 58105, USA

Polymeric Materials Science and Engineering (1987), 56, 645-9

CODEN: PMSEGD; ISSN: 0743-0515

DOCUMENT TYPE: Journal

LANGUAGE: English

AB A linear oligoester diol was prepared by heating a mixture of phthalic

**anhydride**, adipic acid, and neopentyl glycol in a 1:1:3 mol ratio under N at

230° with removal of water until the acid number was <10 mg KOH/g. The diol

was modified with p-hydroxybenzoic acid to give crosslinkable liquid-

crystalline polyols. Baked enamels made by crosslinking these liquid-

crystalline polyols with a melamine resin retained the liquid-crystalline

character of the polyols. These enamels were both harder and much tougher

than enamels made by crosslinking amorphous polyols derived from m-

hydroxybenzoic acid.

CC 42-10 (Coatings, Inks, and Related Products)

Section cross-reference(s): 75

ST liq crystal polyol melamine coating; phthalic **anhydride** liq

crystal polyol; adipic acid liq crystal polyol; neopentyl glycol

liq crystal polyol; hydroxybenzoic acid liq crystal polyol

IT Liquid crystals

(adipic acid-hydroxybenzoic acid-neopentyl glycol-phthalic

**anhydride** copolymer, crosslinkable, preparation of, as coating

binders)

IT Glass temperature and transition

(of hydroxybenzoic acid-containing crosslinkable liquid-crystalline

polyols)

IT 38702-19-1P, Adipic acid-neopentyl glycol-phthalic **anhydride**

- copolymer  
 RL: PRP (Properties); SPN (Synthetic preparation); PREP  
 (Preparation)
- IT 108786-43-2P  
 (preparation and characterization of)  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (preparation of crosslinkable liquid-crystalline, as coating binders)
- LI52 ANSWER 44 OF 55 HCAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 1986:573464 HCAPLUS Full-text  
 DOCUMENT NUMBER: 105:173464  
 TITLE: Properties of blends containing poly( $\alpha$ -olefin-co-maleic anhydride). I. Evidence for crystallization in blends of eicosane and poly(1-octadecene-co-maleic anhydride)  
 Kim, Peter B.  
 Louis Lab., S. C. Johnson and Son, Inc., Racine, WI, 53403, USA  
 Journal of Macromolecular Science, Physics (1987), B26(1), 19-36  
 CODEN: JMAPBR; ISSN: 0022-2348
- AUTHOR(S):  
 CORPORATE SOURCE:  
 SOURCE:
- DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 AB The cocrystrn. of eicosane (I) [112-95-8] with the aliphatic side chains of maleic anhydride-1-octadecene copolymer (II) [25266-02-8] in I-II blends resulted in increases in the m.p. and heat of fusion of the side chains with increasing I content in the melt-blended samples. The m.p. of I decreased at high II concns. in blends prepared by both solution and melt techniques. The Tg of II decreased upon the addition of I which indicated partial miscibility between I and II. The triclinic unit cell structure of I was not perturbed by the addition of II.  
 CC 36-5 (Physical Properties of Synthetic High Polymers)  
 ST crystrn eicosane octadecene copolymer blend; maleic anhydride copolymer; heat fusion maleic anhydride copolymer  
 IT Glass temperature and transition  
 (of maleic anhydride-octadecene copolymer, eicosane concentration effect on)  
 IT Heat of fusion and Heat of freezing  
 (of of maleic anhydride-octadecene copolymer, eicosane effect on)  
 IT Crystallites  
 (size of, of eicosane in maleic anhydride-octadecene copolymer blends)  
 IT Crystallization  
 (co-, in maleic anhydride-octadecene copolymer-eicosane blends)  
 IT Chains, chemical  
 (side, of maleic anhydride-octadecene copolymer, cocrystrn. of, in eicosane blends)  
 IT 112-95-8  
 RL: PRP (Properties)  
 (maleic anhydride-octadecene copolymer blends, cocrystrn. in)
- LI52 ANSWER 45 OF 55 HCAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 1986:515695 HCAPLUS Full-text  
 DOCUMENT NUMBER: 105:115695  
 TITLE: Modeling the influence of main-chain mobility on the melting behavior of side-chain crystals  
 Rim, P. B.

- Louis Lab., S. C. Johnson and Son, Inc., Racine, WI, 53406, USA  
 Polymer Communications (1986), 27(7), 199-201  
 CODEN: POOEFF; ISSN: 0263-6476
- DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 AB DSC was used to determine the influence of mol. weight (M) on the glass transition temperature (Tg) and the side-chain m.p. (Tm) of maleic anhydride-1-octadecene copolymer [25266-02-8]. The Tg obeys the Fox-Flory relation as follows: Tg = 386 K - 1.6 + 105/M. The Tm decreased with increasing copolymer M. A model was developed that predicted a decrease in mobility of the C atoms adjacent to the main chain as the M (Tg) increased and explained the trend in side-chain Tm. M.p. temps. calculated from this model were in excellent agreement with those determined exptl.  
 CC 36-5 (Physical Properties of Synthetic High Polymers)  
 ST mobility polymer chain glass temp; octadecene maleic anhydride copolymer DSC; melting polymer chain modeling DSC  
 IT Chains, chemical  
 (mobility of, of maleic anhydride-octadecene copolymers, melting behavior in relation to)  
 IT Crystallization  
 (of maleic anhydride-octadecene copolymers, melting behavior of side chains in relation to)  
 IT Glass temperature and transition  
 (of maleic anhydride-octadecene copolymers, mol. weight effect on, equation for)
- LI52 ANSWER 46 OF 55 HCAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 1986:187195 HCAPLUS Full-text  
 DOCUMENT NUMBER: 104:187195  
 TITLE: Effect of organic additives on the free volume and crystallization kinetics of high-pressure polyethylene  
 AUTHOR(S): Abbasov, A. F.; Kakhramanov, N. T.; Kerimov, F. Sh.  
 CORPORATE SOURCE: USSR  
 SOURCE: Plasticheskie Massy (1986), (2), 40-1  
 CODEN: PLMSAI; ISSN: 0554-2901
- DOCUMENT TYPE: Journal  
 LANGUAGE: Russian  
 AB Addition of 0.05% phthalimide [85-41-6], phthalic anhydride (I) [85-44-9], di-Et terephthalate [636-09-9], and o-phenylenediamine [95-54-5] to high-pressure polyethylene (II) [9002-88-4] resulted in a decrease of the temperature interval of melting and in a decrease of sp. volume at a given temperature. These results indicate formation of hetero- and homogeneous crystallization centers in II in the presence of the above additives. The free volume of II decreased also on addition of the above additive, especially I, apparently due to inhibition of spherulite growth in II. The glass transition temperature of additive-containing II was in the range from -80° to -93°, compared with -50° for pure II. The rate of isothermal crystallization of II increased on addition of additives and the crystallization kinetics could be described by the Avrami equation.  
 CC 36-3 (Physical Properties of Synthetic High Polymers)  
 ST polyethylene org additive crystrn kinetics; vol free polyethylene org additive; phthalimide polyethylene crystrn kinetics; phthalic anhydride polyethylene crystrn kinetics; phenylenediamine polyethylene crystrn kinetics; terephthalate diethyl polyethylene crystrn kinetics; glass temp polyethylene org additive; morphol polyethylene org additive  
 IT Glass temperature and transition  
 Polymer morphology

IT (of polyethylene, effect of organic additives on)  
85-41-6 85-44-9 95-54-5, properties 636-09-9  
RL: PRP (Properties)

(polyethylene containing, crystallization kinetics and free volume of)

LI52 ANSWER 47 OF 55 HCAPLUS COPYRIGHT 2007 ACS on STN  
1985:488438 HCAPLUS Full-text  
103:88438

TITLE: A DSC and DMA study of polymers with crystallizable  
side chains: poly( $\alpha$ -olefin-co-maleic  
anhydride)  
Rim, Peter B.  
Louis Lab., S. C. Johnson and Son, Inc., Racine, WI,  
53403, USA

JOURNAL OF Macromolecular Science, Physics (1985), B23(4-6), 549-73  
CODEN: JMAPBR; ISSN: 0022-2348

DOCUMENT TYPE: Journal

LANGUAGE: English

AB DSC and dynamic mech. anal. (DMA) of atactic, alternating  $\alpha$ -olefin-maleic anhydride polymers showed the dependence of glass transition temperature ( $T_g$ ) and side-chain melt temperature ( $T_m$ ) on the length of olefin side chains. Copolymers of olefins with C number 18, 20 and 25 had broad  $T_m$  endotherms in their DSC thermograms due to side-chain crystallizability. Those of octene and decene showed no side-chain crystallinity.  $T_m$  decreased and heats of fusion increased with increasing side chain length. Crystallinity was 10-30%, depending on the side-chain cut. DSC thermograms showed heat capacity change to increase with decreasing olefin chain length.  $T_g$  for copolymers of C20 and C25 olefins were not detected by DSC due to the proximity of  $T_g$  and  $T_m$ . Damping maximum in DMA were related to  $T_g$ .  $T_g$  increased dramatically with mol. weight for decene copolymers.

CC 36-5 (Physical Properties of Synthetic High Polymers)  
ST maleic anhydride copolymer property; dynamic mech analysis  
copolymer; glass transition olefin copolymer; melt temp  
olefin copolymer; crstn.olefin copolymer; olefin copolymer property  
IT Glass temperature and transition

Heat capacity  
Heat of fusion and Heat of freezing  
(of maleic anhydride-olefin copolymers, side chain crystallization effect on)

IT Crystallization  
(of maleic anhydride-olefin polymers, mech. and thermal properties in relation to)

IT Alkenes, polymers

RL: PRP (Properties)  
(polymers with maleic anhydride, side-chain crystallization effect on properties of)

IT Chains, chemical  
(side, crystallization of, of maleic anhydride-olefin polymers, mech. and thermal properties in relation to)

LI52 ANSWER 48 OF 55 HCAPLUS COPYRIGHT 2007 ACS on STN  
1978:459962 HCAPLUS Full-text  
89:59962

TITLE: Electrical conductivity of plastic crystals:  
dl-camphoric anhydride, dl-2,3-camphanedione  
and dl-camphor oxime

AUTHOR(S): Swiatkiewicz, J.; Pigon, K.

CORPORATE SOURCE: Dep. Org. Phys. Chem., Tech. Univ. Wroclaw, Wroclaw, Pol.

SOURCE: Acta Physica Polonica, A (1978), A53(2),  
165-75  
CODEN: ATPLB6; ISSN: 0587-4246

DOCUMENT TYPE: Journal  
LANGUAGE: English

AB The elec. conductivity jumps in d,l-camphoric anhydride, d,l-camphanedione, and d,l-camphor oxime single crystals or polycryst. samples in the brittle to plastic phase transition range are related to the calorimetrically observed phase transition at 408.5, 320, and 385.5 K, resp. The elec. conductivity of polycryst. samples depends on recrystn. occurring at high temps. (near the phase transition)) as well as on macrostructural effects which accompany the mechanism. The conductivity in these systems involves an ionic mechanism.

CC 30-10 (Terpenoids)

ST Section cross-reference(s): 76, 22  
calorimetry camphanedione cryst; elec cond camphanedione cryst; camphor oxime elec cond; camphoric anhydride elec cond; ionic mechanism elec cond

IT Phase transition

(in camphor derivs., elec. conductivity in relation to)

IT Enthalpy and Enthalpy function  
(of transition, of camphor derivs., elec. conductivity in relation to)

IT Free energy  
(of phase transition, of camphor derivs., elec. conductivity in relation to)

IT Electric conductivity and conduction

(of plastic crystals of camphoric anhydride, camphanedione, or camphor oxime, ionic mechanism of)  
IT 76-32-4 10373-78-1 13559-66-5

RL: RCT (Reactant); RACT (Reactant or reagent)

(elec. conductivity of crystalline, phase transition and crystal phases in relation to)

LI52 ANSWER 49 OF 55 HCAPLUS COPYRIGHT 2007 ACS on STN  
1969:107005 HCAPLUS Full-text  
70:107005

TITLE: Polyester preparation from 9,10-substituted anthracenes

INVENTOR(S): Klenderman, Bruce H.; Faber, Jan W. H.  
PATENT ASSIGNEE(S): Eastman Kodak Co.  
Fr., 9 PP.

SOURCE: CODEN: FRXXAK

DOCUMENT TYPE: Patent

LANGUAGE: French

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
FR 1520625		19680412	FR 1967-96708	19670228 <--
GB 1184092			GB	
US 3457235		19690722	US	19670217 <--
US 3577366		19710504	US	19690328 <--
US 3678072		19720718	US	19701130 <--
US 3720701		19730313	US	19701130 <--
PRIORITY APPLN. INFO.:			US	19660228 <--
			US	19670217 <--

AB The title comps., useful in the preparation of sensitive stable photographic films, fibers, and elec.-insulating coatings, were prepared by

polycondensation of terephthalic acid or di-Me terephthalate (I) with ethylene glycol (II) in the presence of an anthracene derivative. Thus, a mixture of I 17.64, II 0.6, and 9,10-bis(carbomethoxy)anthracene (III) 3.92 g. was heated for 3 hrs. at 250° under N in the presence of 1 drop of triisopropyl titanate, and stirred for 1 hr. at 275° to give a very-viscous polyester. III, m. 237-8°, bis(acetoxymethyl)anthracene in 3 l. CH<sub>2</sub>Cl<sub>2</sub> during 4 hrs., and 58 g. anthranilic acid in 600 ml. Me<sub>2</sub>CO during 5 hrs., refluxing the mixture for 7 hrs., leaving overnight, washing with 12% aqueous KOH, evaporating to dryness, treating the **crystalline precipitate** with 500 ml. xylene and 50 g. maleic anhydride, refluxing the mixture for 10 min., cooling, diluting with CH<sub>2</sub>Cl<sub>2</sub>, washing with 12% aqueous KOH, and concentrating to give 72% 9,10-bis(acetoxymethyl)anthracene, m. 281-3°, which, on hydrolysis with KOH, gave 87% 9,10-bis(hydroxymethyl)anthracene (IV), m. 308-9°. To a solution of 19 g. IV in 1 l. Me<sub>2</sub>CO, a solution of 19 g. Cr<sub>2</sub>O<sub>3</sub> in 20 ml. concentrated H<sub>2</sub>SO<sub>4</sub> and 175 ml. H<sub>2</sub>O was added, the mixture refluxed 30 min., poured into ice water, 9,10-triptycenedicarboxylic acid (V), m. >475°, separated, 65.5 g. V refluxed with 800 ml. CHCl<sub>3</sub>, 80 ml. SOCl<sub>2</sub> and 5 ml. HCOONMe<sub>2</sub> added, the mixture refluxed 2 hrs., addnl. 30 ml. SOCl<sub>2</sub> added, the mixture refluxed 1.5 hrs., the solvents removed, 250 ml. CH<sub>2</sub>Cl<sub>2</sub> and 250 ml. absolute EtOH added, the mixture boiled 15 min., CH<sub>2</sub>Cl<sub>2</sub> eliminated, and cooled to give 56% III. Other anthracene derivs. prepared were 9,10-dihydro-9,10-bis(hydroxymethyl)-9,10-ethanoanthracene, m. 204-6°, 9,10-dihydro-9,10-bis(hydroxymethyl)-9,10-(2,3-bicyclo[2.2.1]-heptano)anthracene (VI), m. 260-1°, 9,10-ethanoanthracene-11,12-dicarboximide, m. 302-3°. A polyester with a glass-transition temp. of 203° and an inherent viscosity of 0.20 (1:1 PhOH-PhCl) was prepared by the polycondensation of I 100, II 31, and VI 69 moles in the presence of Bu<sub>2</sub>SnO<sub>2</sub>. The absence of VI lowered the glass-transition temperature to 79°.

IC C08G; C07C; C07D

CC 35 (Synthetic High Polymers)

L152 ANSWER 50 OF 55 HCAPLUS COPYRIGHT 2007 ACS on STM

ACCESSION NUMBER: 1967:444305 HCAPLUS Full-text

DOCUMENT NUMBER: 67:44305

TITLE: Diamine copolymers

PATENT ASSIGNEE(S): Monsanto Co.

SOURCE: Neth. Appl., 28 pp.

CODEN: NAXXAN

DOCUMENT TYPE: Patent

LANGUAGE: Dutch

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
NL 6609895		19670116	NL 1966-9895	19660714 <--
DE 1645012			DE	
GB 1141314			GB	
US 3453244		19650701	US	19650714 <--
			US	19650714 <--

PRIORITY APPLN. INFO.: The preparation of copolymers from preformed diamines having built-in alkylene and arylene bonds is described. The copolymers thus prepared have excellent heat resistance, a high glass-transition temperature, a high modulus, and a low elongation and can be worked up to form fibers, films, threads, etc. Thus, a solution of 13.7 g. m-aminobenzoic acid and 7.25 g. 80% aqueous hexamethylenediamine (I) was poured into 500 cc. EtOH to give crystals, m. 180°; 50 cc. of this solution containing 12 g. crystals was decolorized with charcoal and the solution concentrated and freed from H<sub>2</sub>O with PhMe, the anhydrous salt heated to 210°, cooled, and the residue refluxed, filtered, and purified by dissolving the product in dilute HCl, filtering, and reprecipn. of

the diamine by addition of a base to give a dried crude product, m. 94-100°. Recrystn. from EtOH gave a product m. 106-8°. A similar reaction of 83 g. Et p-aminobenzoate and 35 g. I gave 25 g. N,N'-hexamethylenbis(p-aminobenzamide), m. 188-90° (alc.-H<sub>2</sub>O). The salt of p-aminobenzoic acid and I was heated in a hydrocarbon with a high b.p. at 205° to yield a product m. 190-5°. Reaction of 0.1 mole piperazine and 0.2 mole m-aminobenzoic acid in 200 cc. H<sub>2</sub>O in 1 l. EtOH at 200° gave 12.7 g. product m. 225-40°. Reaction of 0.025 mole piperazine hydrate and 50 cc. H<sub>2</sub>O with 0.025 cc. m-nitrobenzoyl chloride in 20 cc. tetrahydrofuran gave N,N'-piperazinebis(m-nitrobenzamide). Addition of 50 cc. N NaOH and drying gave a product m. 242-4° and reduction with SnCl<sub>2</sub> gave a diamine m. 240-2°. Similarly, N,N'-ethylenbis(m-nitrobenzamide), m. 224-31°; N,N'-hexamethylenbis(m-nitrobenzamide), m. 200-2°; and N,N'-2,5-dimethylpiperazinebis(m-nitrobenzamide), m. 302-5°. A solution of 0.354 g. N,N'-hexamethylenbis(m-aminobenzamide) in 2 cc. AcNMe<sub>2</sub> was cooled to -30°, 0.203 g. isophthaloyl chloride added, the solution heated after 15 min. to 0° and after another 15 min. to room temperature. Films were made which were hardened for 30 min. at 110° and 15 min. at 140°. The films could be used to make fibers. A solution of 0.354 g. N,N'-hexamethylenbis(p-aminobenzamide) in 3 cc. AcNMe<sub>2</sub> was cooled to 0°, 0.218 g. pyromellitic acid dianhydride added, the solution warmed to room temperature after 4 hrs., and films made that did not melt or decompose when heated to >300°.

IC C08G

CC 35 (Synthetic High Polymers)

L152 ANSWER 51 OF 55 HCAPLUS COPYRIGHT 2007 ACS on STM

ACCESSION NUMBER: 1964:493241 HCAPLUS Full-text

DOCUMENT NUMBER: 61:93241

ORIGINAL REFERENCE NO.: 61:16277h, 16278a-b

TITLE: Polymerization of higher aldehydes. V. End-capped crystalline isotactic polyaldehydes: Characterization and properties

Vogl, O.

E. I. du Pont de Nemours &amp; Co., Inc., Wilmington, DE

JOURNAL OF POLYMER SCIENCE (1964), 2(Pt. A):10, 4621-31

CODEN: JPSCAU; ISSN: 0022-3832

DOCUMENT TYPE: Journal

LANGUAGE: Unavailable

AB Polyaldehydes were acetate end-capped with C<sub>5</sub>H<sub>5</sub>N.Ac<sub>2</sub>O and were characterized by the determination of solution viscosities, melting points, gel points, and solubilities. Crystalline, isotactic polyaldehydes are insol. in all known solvents at room temperature. The gel point is the temperature at which the first definite opalescence appeared as the solution was cooled slowly. It paralleled the solubility and the m.p. of the polymer. Raw polyaldehydes have unstable hemiacetal end groups as well as stable ester and probably ether end groups. The end-capped polyaldehydes melt at higher temps. than do the corresponding olefins. Methyl branching in the α-position raises the m.p. Relative number-average mol. wts. were estimated by correlating the infrared dectns. of the ester end groups with solution viscosity measurements. Torsion pendulum measurements of polybutyraldehyde showed a transition at room temperature and a shoulder at about -30°. Stability of the polymers depended on their purity. The detrimental impurities included: initiator residues, monomer residues, and the presence of peroxides. Stability also depended on the length of the side chain. The ceiling temperature is below room temperature and spontaneous degradation may occur if end-capping of the polymer ends is incomplete.

CC 49 (Rubber and Other Elastomers)

IT 108-24-7, Acetic anhydride

IT 27789-14-6, Butyraldehyde, homopolymer

(stability and transition temps. of)

LI52 ANSWER 52 OF 55 HCAPLUS COPYRIGHT 2007 ACS on STN  
ACCESSION NUMBER: 1960:106631 HCAPLUS Full-text  
DOCUMENT NUMBER: 54:106631

ORIGINAL REFERENCE NO.: 54:20285b-g  
TITLE: Aromatic *polyanhydrides*, a new class of

high-melting, fiber-forming polymers

Conix, Andre

Gevaert Photo-Producten N. V., Mortsel, Belg.

Journal of Polymer Science (1958), 29,

343-53

CODEN: JPSCAU; ISSN: 0022-3632

Journal

Unavailable

DOCUMENT TYPE:

AB *Polyanhydrides* derived from dibasic aromatic acids were investigated in searching for new polycondensates. Aromatic *polyanhydrides* showed excellent film- and fiber-forming properties, high m.p.s., and hydrolytic stability, and could be prepared from dibasic acids of a general formula  $x-(Y-HO_2C_6H_4R)_2CO_2H$ , where the carboxyl functions are in the para- or meta-position to the aliphatic residue, R, such as  $O(CH_2)_{n-1}$  or  $(CH_2)_n$  which separate the benzene rings. Aromatic *polyanhydrides* were generally prepared by converting the dibasic acids into mixed *anhydrides* with AcOH. Products of higher mol. wts. were obtained by faster reaction, however, by mixing *anhydrides* in vacuo at elevated temps. for removal of AcOH. These polymers were characterized by easy crystallizability, high m.p.s., and good stability to hydrolytic degradation. Proof of crystallinity was given by examination of x-ray diagrams obtained on stretched fibers of *polyanhydrides* indicating a highly oriented crystalline fiber structure. The glass transition temps., which were determined dilatometrically, were between 50 and 100°. A dilatometric curve in which the sp. volume was plotted vs. temperature showed the 2 straight lines intersecting at the glass transition temperature, which particular curve was obtained on a quenched, amorphous *polyanhydride* sample prepared from 1,4-bis(p-carboxyphenoxy)butane. The resistance to hydrolysis, even on exposure to alkaline solns., was one of the unusual properties of the crystalline *polyanhydrides*. Tests were performed to compare the hydrolytic stability of the aromatic *polyanhydrides* with that of aliphatic *polyanhydrides*, a diagram being presented in which the weight % of hydrolyzed polymer was plotted against time of exposure to N NaOH. The best fiber-forming properties were found in *polyanhydrides* prepared from  $\alpha,\omega$ -bis(p-carboxyphenoxy)alkanes. Fibers could be drawn from the melt showing the characteristic property of cold drawing. Such fibers improved in strength and Young's modulus when stretched at temps. above the glass transition temperature. When annealed at 110° under constant load, the fibers showed a tensile strength of 40 kg./sq. mm. with an elongation of 17.2%, and a Young's modulus of 505 kg./sq. mm. The crystalline m.p.s. and the glass transition temps. were given, also examples showing the influence of other chemical modifications of the connecting group on the m.p. of *polyanhydrides* containing p-phenylene groups.

CC 31 (Synthetic Resins and Plastics)

IT Fibers, synthetic

IT (from *anhydride* (aromatic) polymers)

IT Crystallinity

(of polymers (aromatic *anhydride*))

IT *Anhydrides*

(polymers of aromatic, and fibers therefrom)

IT Benzoic acid, 3,3'-(hexamethylenedioxy)di-, *polyanhydride*

Benzoic acid, 4,4'-(hexamethylenedioxy)di-, *polyanhydride*

Benzoic acid, 4,4'-(hexamethylenedi-, *polyanhydride*

Benzoic acid, 4,4'-isopropylidenedi-, *polyanhydride*

RU: PREP (Preparation)

IT 790-83-0, Benzoic acid, 4,4'-methylenedi- 3749-77-7, Benzoic acid,

4,4'-(tetramethylenedioxy)di- 2247-66-1, Benzoic acid,

4,4'-(pentamethylenedioxy)di- 47168-52-5, Benzoic acid,

4,4'-(methylenedioxy)di- 101790-47-0, Benzoic acid, 4,4'-(

tetramethylenedioxy)di- 109469-78-5, Benzoic acid,

3,3'-(tetramethylenedioxy)di- 110047-93-3, Benzoic acid,

4,4'-(pentamethylenedioxy)di- 110048-20-9, Benzoic acid, 3,3'-(

pentamethylenedioxy)di-

(*polyanhydrides*)

IT 790-83-0p, Benzoic acid, 4,4'-methylenedi- 793-07-7p,

$\alpha,\alpha'$ -Bi-p-toluic acid, *polyanhydrides* 793-07-7p;

$\alpha,\alpha'$ -Bi-p-toluic acid, 2215-89-6p, Benzoic acid, 4,4'-oxydi-

3749-77-7p, Benzoic acid, 4,4'-(tetramethylenedioxy)di-

Benzoic acid, 4,4'-(ethylenedioxy)di-, *polyanhydrides* 3753-05-7p,

3753-05-7p, Benzoic acid, 4,4'-(ethylenedioxy)di-, 3753-81-9p, Benzoic

acid, 4,4'-(trimethylenedioxy)di-, *polyanhydrides* 3753-81-9p, Benzoic

acid, 4,4'-(trimethylenedioxy)di- 5140-05-6p, Benzoic acid,

4,4'-trimethylenedi- 5140-05-6p, Benzoic acid, 4,4'-trimethylenedi-

*polyanhydrides* 2247-66-1p, Benzoic acid, 4,4'-(

pentamethylenedioxy)di- 51778-89-3p, Benzoic acid, 4,4'-(

tetramethylenedioxy)di- 51778-89-3p, Benzoic acid, 4,4'-(tetramethylenedi-

*polyanhydrides* 51936-61-9p, Benzoic acid, 3,3'-(ethylenedioxy)di-

51936-61-9p, Benzoic acid, 3,3'-(ethylenedioxy)di-

*polyanhydrides* 69984-27-6p, Benzoic acid, 4,4'-(

oxybis(ethylenoxy)di- 69984-27-6p, Benzoic acid, 4,4'-(

oxybis(ethylenoxy)di-, *polyanhydrides* 74774-53-1p, Benzoic

acid, 4,4'-(hexamethylenedioxy)di- 101110-94-5p, p-Anisic acid,

$\alpha,\alpha'$ -oxydi- 101110-94-5p, p-Anisic acid,

$\alpha,\alpha'$ -oxydi-, *polyanhydrides* 102553-57-1p, Benzoic

acid, 4,4'-hexamethylenedi- 109251-40-3p, Benzoic acid,

3,3'-(trimethylenedioxy)di-, *polyanhydrides* 109251-40-3p,

Benzoic acid, 3,3'-(trimethylenedioxy)di- 109469-78-5p, Benzoic acid,

3,3'-(tetramethylenedioxy)di- 110047-93-3p, Benzoic acid,

4,4'-(pentamethylenedioxy)di- 110048-20-9p, Benzoic acid, 3,3'-(

pentamethylenedioxy)di- 111798-03-9p, Benzoic acid,

3,3'-(hexamethylenedioxy)di-

RU: PREP (Preparation)

(Preparation of)

LI52 ANSWER 53 OF 55 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1960:6914 HCAPLUS Full-text

DOCUMENT NUMBER: 54:6914

ORIGINAL REFERENCE NO.: 54:1408e-i,1409a-b

TITLE: Synthesis of *polyanhydrides*. II: Aromatic

*polyanhydrides* with high melting points and

fiber-forming properties

Yoda, Naoya

AUTHOR(S):

CORPORATE SOURCE:

SOURCE: Toyon Rayon Co., Ltd., Otsu

Macromolekulare Chemie (1959), 32, 1-12

CODEN: MACEAK; ISSN: 0025-116X

DOCUMENT TYPE:

Journal

Unavailable

LANGUAGE:

AB

*Polyanhydrides* which possess a methylene group or methylene group and ether

linkage between the aromatic nuclei and CO<sub>2</sub>H groups form high-melting fiber-

forming polymers. These groups enhance flexibility of the mol. chain and

lower m.p. as compared to *polyanhydrides* formed from terephthalic acid;

hydrolytic stability is also good. The enhancement of flexibility and

- depressed m.p. are thought to be due to the breaking up the overlap hybridization of p electron orbitals between the aromatic nucleus and the adjacent C=O groups. Hydroquinone (66 g.) is treated with 200 cc. solution containing 96 g. NaOH. After 2 hrs., 80 g.  $\text{ClCH}_2\text{CO}_2\text{H}$  (I) in 50 ml. water is added dropwise. The **precipitate** is filtered off, dissolved in water, acidified and **recrystd.** from AcOH to give 68-72% hydroquinone-0,0'-diacetic acid (II), prisms, m. 251°.  $\lambda$  (KBr) 5.85, 8.25, and 12.62  $\mu$ . p-Xylene dichloride (180 g.) added to 1400 ml. 40% aqueous alc. cyanide solution gave 80%  $\alpha,\alpha'$ -dicyano-p-xylene (III), m. 97° (EtOH). III (500 g.) in 1500 ml. 1:3 EtOH-benzene treated with dry HCl for 12 hrs. and allowed to stand for 12 hrs. gave 240 g. p-C6H4(CH<sub>2</sub>Cl)(NH)OEt.HCl.12 which on refluxing in water for 2 hrs. gave p-C6H4(CH<sub>2</sub>CO<sub>2</sub>H)<sub>2</sub> (IV), m. 247-8° (Et-OH). Bisphenol A (23 g.) and 13.2 g. I gave 2,2-bis(4-hydroxyphenyl)propane-0,0'-diacetic acid (V). Aniline (37 g.) 135 ml. water, and 40 ml. HCl were put in an autoclave with 11.6 ml. acetone, heated at 145° for 10 hrs., cooled, made alkaline, extracted with Et<sub>2</sub>O and distilled, b.p. 5.186-90°, and **recrystd.** from benzene gave 4.1 g. 2,2-bis(4-aminophenyl)propane (VI), needles, m. 126.5-27°,  $\lambda$  2.98 and 6.15 and 12.20  $\mu$ . VI (18 g.) and Cu<sub>2</sub>(C<sub>2</sub>H<sub>3</sub>O<sub>2</sub>)<sub>2</sub> gave 48% 2,2-bis(4-cyanophenyl)propane (VII), m. 139-40°, pale yellow **crystals** from MeOH, b.p. 5.196-206°,  $\lambda$  4.46  $\mu$ . VII (9.0 g.) was hydrolyzed with 200 ml. 75% H<sub>2</sub>SO<sub>4</sub> to 94% 2,2-bis(4-carboxyphenyl)propane (VIII), m. 314° (AcOH). II (30 g.) was refluxed with 500 ml. Ac<sub>2</sub>O at 150-60° for 5 hrs. The product was decolorized with C, and Ac<sub>2</sub>O distilled to give the prepolymer, II diacetate. II diacetate was heated under N at 160-210°/20 mm. and 215-20°/3 mm. for 2 hrs. The polymer gradually became viscous and yielded a **polyanhydride**, m. 158°, possessing fiber-forming properties and glass-transition temperature 70°,  $\lambda$  5.52 and 5.73 and 9.21  $\mu$ . The polymer was stable to hydrolysis and showed increased **crystallinity** after annealing at 100°. Other polymers similarly prepared include: IV polymer, m. 152°, fiber-forming and elastic, intrinsic viscosity 0.19 at 30° (dioxane), glass transition temperature 65°, shows increased **crystallinity** after annealing at 100°,  $\lambda$  5.52 and 5.74  $\mu$ ; V polymer, m. 196-202°, film and fiber-forming, similar infrared features, good stability to hydrolytic and thermal degradation; VIII polymer, m. 238-40°, glass transition temperature 140°, film and fiber-forming, similar infrared spectrum.
- 10E (Organic Chemistry: Benzene Derivatives)
- IT Methylene group
- IT (effect on alkylaromatic **polyanhydride** polymerization)
- IT Bonds
- IT (ether, effect on alkylaromatic **polyanhydride** polymerization)
- IT Fibers, synthetic
- IT (from **anhydride** polymers)
- IT **Anhydrides**
- IT (poly)
- IT 2245-53-6, Acetic acid, (p-phenylenedioxy)di- 109100-37-0, Acetic acid, (p-phenylenedioxy)di-**anhydride** with AcOH (and polymer therefrom)
- IT 64-19-7, Acetic acid
- IT (**anhydrides**, with (p-phenylenedioxy)diacetic acid, and polymer therefrom)
- IT 183748-02-9, Electron
- IT (configuration or density distribution of, in alkylaromatic **polyanhydrides**, polymerization and)
- IT 3539-42-2, Acetic acid, (isopropylidenebis(p-phenylenedioxy)di- (polymeric **anhydrides** from))
- L152 ANSWER 54 OF 55 HCAPLUS COPYRIGHT 2007 ACS on STN  
 ACCESSION NUMBER: 1957:90680 HCAPLUS Full-text  
 DOCUMENT NUMBER: 51:90680  
 ORIGINAL REFERENCE NO.: 51:16440h-i,16441a-i,16442a-f

- Some acylferrocenes and their reactions
- Graham, P. J.; Lindsey, R. V.; Parshall, G. W.; Peterson, M. L.; Whitman, G. M.  
 E. I. du Pont de Nemours & Co., Wilmington, DE  
 Journal of the American Chemical Society (1957)  
 ), 79, 3416-20  
 CODEN: JACSAT; ISSN: 0002-7863  
 Journal
- DOCUMENT TYPE: Unavailable
- LANGUAGE: English
- AB Finely ground dicyclopentadienyliron (I) (112 g.) and 107 g. POCl<sub>3</sub> treated at 50° dropwise with stirring during 1.25 hrs. with 81 g. HCONMePh, the mixture cooled slowly to room temperature, allowed to stand 3 hrs., poured onto 500 g. ice, and extracted 45 hrs. with Et<sub>2</sub>O, the extract worked up, and the residue sublimed at 70° and 1 mm. yielded 85.4 g. (crude) formylcyclopentadienyl(cyclopentadienyl)iron (II), reddish brown **crystals** from 3:1 heptane-CH<sub>2</sub>Cl<sub>2</sub> showing a sharp transition temperature at 45° under polarized light, m. 124.5°. A similar run using HCONMe<sub>2</sub> at 85° during 3.5 hrs. yielded only 23% II. II (10 g.) shaken vigorously with 100 g. 40% aqueous NaHSO<sub>3</sub> and 15 cc. EtOH yielded 13.3 g. NaHSO<sub>3</sub>-II addition compound (III), yellow solid. II and NH<sub>2</sub>OH in aqueous MeOH at 30° gave 77% oxime (IV) of II, m. 133-5° with crystalline transition at 98° (from 2:3 C<sub>6</sub>H<sub>6</sub>-heptane). II and H<sub>2</sub>CONHNH<sub>2</sub> in aqueous EtOH at 60° yielded 58% semicarbazone of II, m. 203-4° (decomposition) (from 5:4 EtOH-HCONMe<sub>2</sub>). II gave by the method of Fox and Gibas (C.A. 48, 8783g) an isonicotinylhydrazide, m. 212-13° (from 2:1 iso-PrOH-EtOH), in 39% yield. II treated at room temperature with N<sub>2</sub>H<sub>4</sub>.H<sub>2</sub>O in MeOH yielded 47% azine of II, red-brown **crystals**, m. 245° (from HCONMe<sub>2</sub>). II yielded by the method of Julian and Sturgis (C.A. 29, 50874) 70% rhodanone of II, deep blue, m. 245° (decomposition). II (10.7 g.) in 250 cc. dry Et<sub>2</sub>O reduced with LiAlH<sub>4</sub> gave 9.5 g. (crude) (hydroxymethyl)cyclopentadienyl(cyclopentadienyl)iron, yellow needles, m. 74-6° (from 60 cc. Skellysolve and 10 cc. CHCl<sub>3</sub>). II (10.0 g.) reduced over Raney Ni 1.5 hrs. at 50° and 135 atmospheric pressure gave 5.35 g. yellow **crystals**, m. 129-30°, possibly oxymethylenebis(dicyclopentadienyliron). II (21.4 g.) in 100 cc. MeOH heated 3 hrs. at 120° with 25 g. Me<sub>2</sub>NH in the presence of Raney Ni at 165 atmospheric H pressure, the mixture filtered through C, diluted with H<sub>2</sub>O, and extracted with Et<sub>2</sub>O, the extract washed with H<sub>2</sub>O, dried, and treated with 20 g. MeI in 50 cc. dry Et<sub>2</sub>O, and the yellow **precipitate** washed with dry Et<sub>2</sub>O and dried over P<sub>2</sub>O<sub>5</sub> in vacuo yielded 29.1 g. ferrocenylmethyltrimethylammonium iodide, m. 218° (decomposition). IV (20 g.) treated at room temperature with 40 cc. Ac<sub>2</sub>O, poured after about 0.5 hr. onto 200 g. ice, treated with 10 g. Na<sub>2</sub>CO<sub>3</sub>, and extracted with CH<sub>2</sub>Cl<sub>2</sub>, and the extract worked up gave the acetate (V) of IV, viscous red oil, which decomposed slowly at room temperature. The oily V in a vacuum desiccator over P<sub>2</sub>O<sub>5</sub> pumped several days, and the resulting solid sublimed at 100° and 1 mm. pressure during several days gave 10 g. (crude) cyanocyclopentadienyl(cyclopentadienyl)iron, m. 103-4° (from 125 cc. heptane). III (from 21.4 g. II in 35 cc. EtOH and 20.8 g. NaHSO<sub>3</sub> in 100 cc. H<sub>2</sub>O) treated with 9.8 g. NaCN in 100 cc. H<sub>2</sub>O, stirred 2 hrs. at about 50°, cooled in ice, and filtered, the moist product (31 g.) extracted with two 175-cc. portions C<sub>6</sub>H<sub>6</sub>, and the combined exts. evaporated yielded 17 g. (crude) 1-hydroxy-1-(cyanomethyl)cyclopentadienyl(cyclopentadienyl)iron, m. 104° (decomposition) (from C<sub>6</sub>H<sub>6</sub> containing a trace of EtOH). II (21.4 g.) in 50 cc. dry pyridine mixed at room temperature with 26 g. NCCl<sub>2</sub>CO<sub>2</sub>H in 20 cc. pyridine, heated 2.5 hrs. on the steam bath, cooled, kept 2 days at room temperature, diluted with 500 cc. cold H<sub>2</sub>O, cooled in ice, acidified with 150 cc. 6N H<sub>2</sub>SO<sub>4</sub>, and extracted with CH<sub>2</sub>Cl<sub>2</sub>, the extract worked up, the residual oil treated with 20 g. Na<sub>2</sub>CO<sub>3</sub> in 200 cc. H<sub>2</sub>O, the paste mass diluted with 100 cc. H<sub>2</sub>O and filtered, and the alkaline filtrate cooled in ice and acidified yielded 5.3 g. (crude) 2-cyano-2-carboxyvinyl derivative (VI) of I, m. 158.5-60° (decomposition); (from CHCl<sub>3</sub>-CCl<sub>4</sub>); it gave deep purple solns. in Me<sub>2</sub>CO or



EtOH. The solid remaining from the Na2CO3 extraction dried over P2O5, washed with 150 cc. CHCl3, and *recrystd.* from EtOH gave 9.4 g. dark red Na salt of VI; it reacted readily with Cu(OAc)2 to give red insol. Cu salt. Moist III (from 21.4 g. II) slurried in 150 cc. EtOH and added rapidly with stirring to 29.4 g. KCN, 86.3 g. (NH4)2CO3, 150 cc. H2O, and 50 cc. EtOH, the mixture stirred 1.5 hrs. at 55° and cooled to room *temperature*, the EtOH distilled, the residue cooled and filtered, and the filter residue (19 g.) washed with hot C6H6 and hot MeOH, dissolved in 4% aqueous NaOH, filtered, *recptd.* with acid and *recrystd.* from (CH2OH)2 and from aqueous HCOONa2 gave 9.0 g. hydantoin derivative, Cl3H12FeN2O2, yellow-brown, m. 192-7° (decomposition). Barbituric acid (6.4 g.) and 3.0 g. KOAc in 150 cc. glacial AcOH filtered, heated to 95°, treated during 2 min. with 10.7 g. II in portions, cooled slowly to room *temperature*, and filtered, and the violet residue washed with glacial AcOH and with MeOH gave 13.1 g. (crude) 5-ferrocenylmethylenebarbituric acid, did not melt below 260° (sublimed). I (93 g.), 250 cc. Ac2O, and 20 cc. 85% H3PO4 heated 10 min. at 100°, cooled slightly, poured onto ice, allowed to stand overnight, neutralized with 200 g. Na2CO3.H2O in 200 cc. H2O, cooled in ice, and filtered, and the residue washed with H2O, dried, and sublimed at 100° and 1 mm. pressure yielded 81.5 g. acetylcylopentadienyl(cyclopentadienyl)iron (VII), orange, m. 85-6° (from heptane). VII (22.8 g.) in 125 cc. absolute EtOH, and 30 g. liquid NH3 hydrogenated 3 hrs. at 100° and 135 atmospheric pressure over 10 g. Raney Ni, mixed with 2 g. Celite, and filtered, the filtrate poured into 500 cc. cold H2O and extracted with Et2O, the extract washed with H2O, dried, diluted with 1 l. dry Et2O, and treated with dry HCl, and the pink *precipitate* filtered after 15 min., washed with Et2O, partially air-dried, slurried with 100 cc. CHCl3 at room *temperature*, filtered, and washed with CHCl3 gave 5.9 g. (crude) pale yellow 1-aminoethyl analog of VII as HCl salt, m. 163-5° (decomposition) and extracted with Et2O, and the aqueous phase neutralized with concentrated HCl yielded 2.5 g. HO2CH2 analog (IX) of VII, light yellow needles, m. 150-2° (from deoxygenated MeOH); the Et2O extract washed, dried, and evaporated, and the residue *recrystd.* from C6H6-hexane yielded 0.3 g. morpholinocarbonylmethyl analog of VII, yellow needles, m. 148-9°. AlCl3 (96 g.) in 200 cc. CH2Cl2 treated with 36 g. succinic *anhydride*, stirred, shaken a few min., treated during 10 min. with 33.3 g. I in 200 cc. CH2Cl2 in small portions, heated to 35°, kept 7 hrs. at room *temperature*, poured onto ice, and filtered, the air-dried residue (46 g.) extracted with 800 cc. boiling H2O and twice with 150 cc. boiling H2O, and the combined exts. cooled in ice and filtered yielded 19.7 g. bis [(3-carboxypropionyl)cyclopentadienyl]iron (X), m. 164-6° (decomposition). X (21.3 g.), 1.5 g. H2SO4, 200 cc. EtOH, and 250 cc. PhMe slowly distilled during 4 hrs. through a small column, the remaining solution cooled to room *temperature*, washed with 75 cc. 10% aqueous Na2CO3, dried, and evaporated at room *temperature*, and the residue (23 g.) *crystallized* from EtOH yielded 20.3 g. di-Et ester of X, orange-brown platelets, m. 134-6°. X (17.1 g.) in 200 cc. EtOH hydrogenated 3 hrs. at 85° and 165 atmospheric pressure over 1 g. RuO2, the mixture heated on the steam bath and filtered through C, the filtrate evaporated, the residual tan gum extracted with MeOH, the resulting yellow powder *recrystd.* from 50 cc. CHCl3, and the *crystalline* product (4.3 g.) dissolved in 30 cc. boiling CHCl3, diluted with 25 cc. MeOH, concentrated to beginning *crystallization*, and cooled gave 3.7 g. bis[(5-oxotetrahydro-2-furyl)cyclopentadienyl]iron, golden-yellow, m. 165° (decomposition). Bis[(3-chloropropionyl)cyclopentadienyl]iron (XI) (10 g.) and 4.0 g. KCN in 150 cc. EtOH refluxed 4 hrs., filtered, and cooled in ice yielded 5.4 g. bis(3-cyanopropionyl) analog (XII) of XI, orange, m. 133-4° (from PhMe). XII (8.2 g.) in 100 cc. EtOH hydrogenated at 65° and 135

atmospheric pressure over Raney Ni, filtered, dried, diluted with 500 cc. Et2O, and treated with dry HCl, and the *precipitate* dissolved in 50 cc. H2O and *recptd.* with aqueous Na2CO3 gave 5.3 g. bis [(4-aminobutyl)]analog of XI, orange, m. 137-8° (from heptane). Bis(acetylcylopentadienyl)iron (30 g.) reduced with 3 g. LiAlH4 in 150 cc. tetrahydrofuran gave 27.8 g. (crude) bis(1-hydroxyethyl) analog of XI, yellow, m. 69-71° (from hexane). The infrared absorption spectra of I at room *temperature* and at the *transition* point are recorded.

CC 10 (Organic Chemistry)

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ACCESSION NUMBER: 1921:7929 HCAPLUS Full-text

DOCUMENT NUMBER: 15:7929

ORIGINAL REFERENCE NO.: 15:1468a-h

TITLE: Salts of stannic and plumbic acids

AUTHOR(S): Zoehrer, Hans

SOURCE: Z. anorg. allgem. Chem. (1920), 112, 1-66

DOCUMENT TYPE: Journal

LANGUAGE: Unavailable

AB A study of stannates and plumbates was undertaken with the object of elucidating the so-called semi-colloidal state, with a critical discussion of which the paper opens. The methods for preparing and analyzing alkali stannates are described. Na2SnO3 *crystallizes* from NaOH solns. at ordinary *temps.* as the trihydrate, Na2Sn(OH)6; it is practically insol. in 7.0 N NaOH. When *precipitated* by NaOH at 0° or by alc. at 0°, or ordinary *temps.*, it forms the tetrahydrate, Na2Sn(OH)6.H2O. The solubilities of the two hydrates were determined between -5 and 50°, that of the trihydrate, less soluble salt, which may be regarded as an "*anhydride*," diminishing with increasing *temperature*, while that of the tetrahydrate increases. The transition point was difficult to determine by the dilatometric method, but from the solubility curves it appears to be close to -5°. The trihydrate forms a eutectic with water at -11°, the tetrahydrate at -7°. In addition, a third hydrate, approximating to Na2Sn(OH)6.18H2O, was discovered, which has a transition point to the "*anhydride*" at 1°. The hydrolysis of Na2SnO3 in aqueous solns. was studied by means of potential measurements. In normal solns. the hydrolysis is about 2.7%, and appears to be complete at a dilution of 1/3000 N. In normal solns. of the stannate the extent of hydrolysis gradually increases with time. This phenomenon is discussed in connection with similar observations in the case of other colloidal solns. and of solns. of SnClH4. There is no evidence of adsorption of alkali by Na2SnO3 under any conditions. Li stannate forms an "*anhydride*," Li2Sn(OH)6, isomorphous with the Na salt, and also a dihydrate of this salt, Li2Sn(OH)6.2H2O. The solubilities of both salts were determined between 28° and 80°. The two curves are approx. parallel, the solubilities increasing with the *temperature*; the *transition* point could not be found, but is probably below 100°. K2SnO3 forms an "*anhydride*," K2Sn(OH)6, and also a mono- and di-hydrate of this salt. The solubilities are greater than those of the Na and Li salts. In the course of a long discussion on the chemical of SnO2 from the colloidal point of view, the following points are elucidated. The low *crystallization* velocity of the oxide, resulting from its slight solubility, facilitates its assumption of the colloidal state. The "ageing" of the colloid is accelerated or retarded by various influences, particularly by accompanying salts in solution. Coagulation, that is the coalescence of the bounding surfaces of the colloidal particles in solution, is retarded by the electrostatic charge on the particles. The work was also extended to the plumbates. Na plumbate was prepared by dissolving freshly *precipitated* PbO2 in small quantities at a time, in boiling concentrated (8-10 N) NaOH solution. The salt is very sparingly soluble in this solution, and separates in *crystals* which appear to be isomorphous with Na2SnO3. Although the analyses of the *crystals* always showed excess of Na2O, their composition is taken to be Na2Pb(OH)6. Li



(FILE 'HOME' ENTERED AT 18:27:48 ON 14 JUN 2007)

FILE 'REGISTRY' ENTERED AT 18:27:58 ON 14 JUN 2007

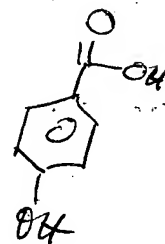
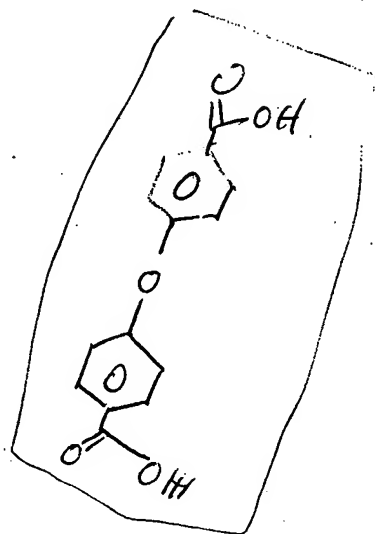
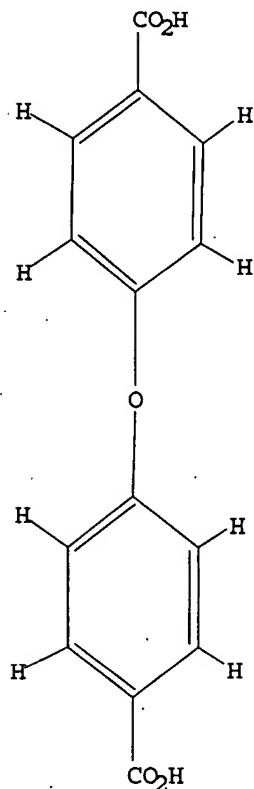
L1 0 S "PARA-HYDROXYBENZOIC ACID ANHYDRIDE"/CN  
L2 STRUCTURE UPLOADED

STN Search by  
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=> d 12

L2 HAS NO ANSWERS

L2 STR



Structure attributes must be viewed using STN Express query preparation.

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SAMPLE SCREEN SEARCH COMPLETED - 403 TO ITERATE

100.0% PROCESSED 403 ITERATIONS  
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32 ANSWERS

FULL FILE PROJECTIONS: ONLINE \*\*COMPLETE\*\*  
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PROJECTED ITERATIONS: 6856 TO 9264  
PROJECTED ANSWERS: 301 TO 979

L3 32 SEA SSS SAM L2

=> s 12 full

FULL SEARCH INITIATED 18:34:07 FILE 'REGISTRY'  
FULL SCREEN SEARCH COMPLETED - 8087 TO ITERATE

100.0% PROCESSED 8087 ITERATIONS  
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581 ANSWERS